SYncomm 5.5
User's Manual

Synel Industries Ltd.

Manual 07/02/05, Catalog no.660000 Part no. (SYncomm-223-043)

This document has been prepared for *SYncomm ver. 5.5.*

Table of contents

Chapter 1 - Introduction

SYncomm is a software that manages Synel terminals' environmental communication activities.

The spectrum of SYncomm's capacities is wide, it can manage communication between terminals and host using net and local protocols. SYncomm's multi-scale activities are outlined below:

- Grants full support for SY-7XX terminal programming, other terminals are supported using data editing.
- For SY-400A/760/780A terminals the following can be implemented (only under **Terminal type** SY780):
  - Remote **Upgrading Firmware**.
  - **Memory Formatting** from the software (not via the terminal).
- Uses DLL for programming (SYNDLL).
- Enables MAC management net terminals.
- Collects data from the terminal (transactions).
- Displays terminal status details including date/ time, current activity and terminal memory.
- Imports authorized list from external files.
- Performs enrolment of fingerprints at an end-unit. These templates can later be sent to another end-unit.
- Data files are downloaded or uploaded from and to the terminal/host/ external database.
- Data files can be transmitted to the host via FTP.
- Uses utility programs which are run prior to transmitting data to the terminals.
- Executes routine activities automatically according to a pre-defined schedule.
- Sends e-mail notifications to the operator when a communication malfunction occurs.
- Log files view enables close follow-up on each terminal transactions and any errors.
- A built-in report builder enables generating tailor-made reports (recommended for professional users).

1.1. SYncomm modules

The software is composed of four modules:

Category	Associate with
Activities	Tasks management, maintenance and FPU procedures
Comm. Setup	Terminals and protocols parameters
Edit program	Programming terminals
Set-up	Default definitions

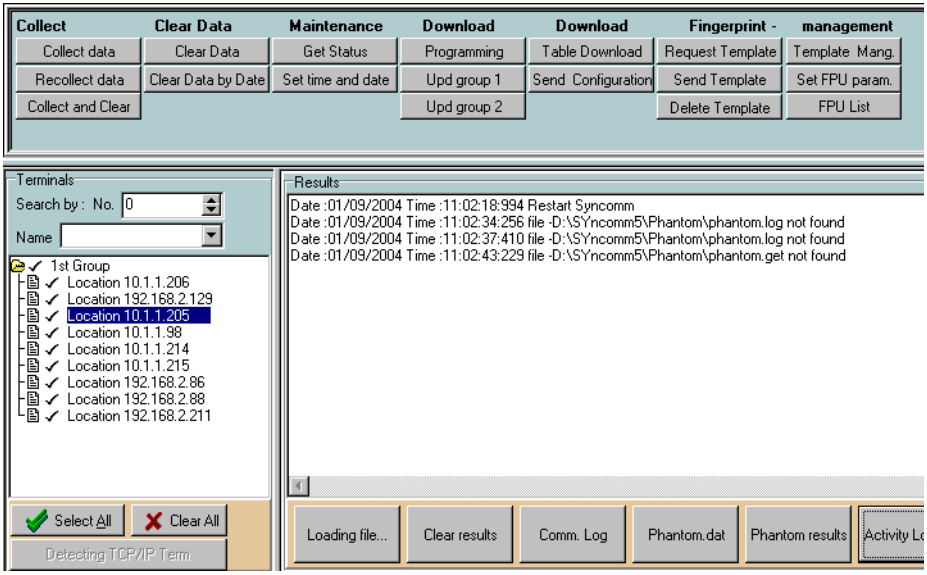
Three modules are used for SYncomm setup programming purposes while the **Activities** module is where the programmed tasks are performed.

The **Comm. Setup** module enables defining all elementary hardware parameters. It is divides into folders as follows:

- Terminal
- Groups
- Protocols
- Automation
- Security Group

After defining all communication parameters, these will be integrated into the different terminals as per user requirements under the **Edit Program** screen. SYncomm manages access validation and data tables for Synel terminals: SY-7xx, SY-4xx, COMM I/II, PRO, TA models, Tango and Time plus. SY-7xx terminals can be fully programmed from SYncomm.

SYNcomm **Activity** screen is where the user can manage and monitor communication using various log files that can be viewed in the **Results** screen area. It is the most commonly used module. In the page below please find an example:



SYncomm supports various communication protocols such as: RS-232, RS-485, Ethernet via TCP/IP Protocol and a dialling modem.

SYncomm uses other Synel communication applications such as Phantom, SYNDLL or SYServer to obtain maximal efficiency and speed in managing a variety of terminals and a wide variety of incoming data from various sources (from authorized lists, to fingerprint templates etc.).

SYncomm can perform a wide range of auto-task communication activities. It also provides communication failure notification via e-mail, FTP file transportation, activity logging, fingerprint management, etc.

In addition, it is possible to present automation results in grid format or graphically.

SYncomm can be operated as follows:

- User Operation - Via simple command buttons an operation can be performed on all defined tasks, or on single terminals or groups of terminals.
- Automatic Operation - Programmed activities can be performed automatically as per a predefined schedule.

1.2 System Requirements

- Intel Pentium processor or higher
- RAM 64 Mbyte
- 100 MB of available hard-disk space
- 256 color (8 bit) display adapter
- 800x600 – full color monitor resolution recommended
- CD-ROM drive
- Microsoft Windows 95, Windows 98, Windows Millennium Edition, Windows NT 4.0, Windows 2000, Windows XP or Windows 2003.

Chapter 2 -Installation

Insert the CD into the drive, run the setup.exe. Then, follow the listed guidelines to perform software installation:

2.1. Install software

1. Insert SYncomm CD into the computer CD drive and follow the step by step installation procedure, fill-in your name and company name.
2. The setup program will complete the installation, a message indicates that installation was successful.
3. Setup places a SYncomm file on the operating system program list or creates shortcut icon on your desktop.

2.1. Multi-user installation

Install as follows:

Step 1. Install *SYncomm* into each PC in the System.

Note: *Follow these guidelines strictly:*

1. *Open Control Panel| BDE Administrator and in Configuration| System| Init set Local Share as True.*

2. *Open Control Panel| BDE Administrator and in Databases|SYncomm set PATH to the shared database. All clients must use the EXACT same path to the SYncomm\DBF alias (same drive or UNC name and same case for all clients).*

3. *SYncomm.exe should be run from a local drive, each client running his/her own copy. Drive mapping is not recommended (can be accidently deleted)! Use a UNC name (Universal Naming Connection): \\serverNAME\shareNAME\DBF.*

Step 2. Copy this database into the server (each under a designated directory).

Step 3. Each PC must now create a path to these files in the server.

Step 4. All *SYncomm* stations must share (full permission sharing) a server under an identical name.

Step 5. Choose the appropriate directory, click **OK**, confirm the new path. The program will then **Restart**.

Step 6. Repeat steps 1–5 to perform setup for each PC in the system.

Note: *You can not run SYncomm twice on the same PC.*

SYncomm definitions:

Under **Set-up**| **Multi-user** define the following parameters:

1. Net directory - A shared path (it is recommended to fill-in : \\PC name\..... i.e: \\synw\sys\SYncomm.dbf).
2. Drive alias of terminal programming file- Under **Replace**: fill-in your PC drive mapping to the programming folder. **With**: fill-in the net drive mapping to the programming folder.
3. For the Edit Program screen: Temporary directory for multi-user programming-Project programming data can be stored locally Net directory- Project programming data can be stored in the network.

Chapter 3 - Getting Started

3.1. Screen Layout

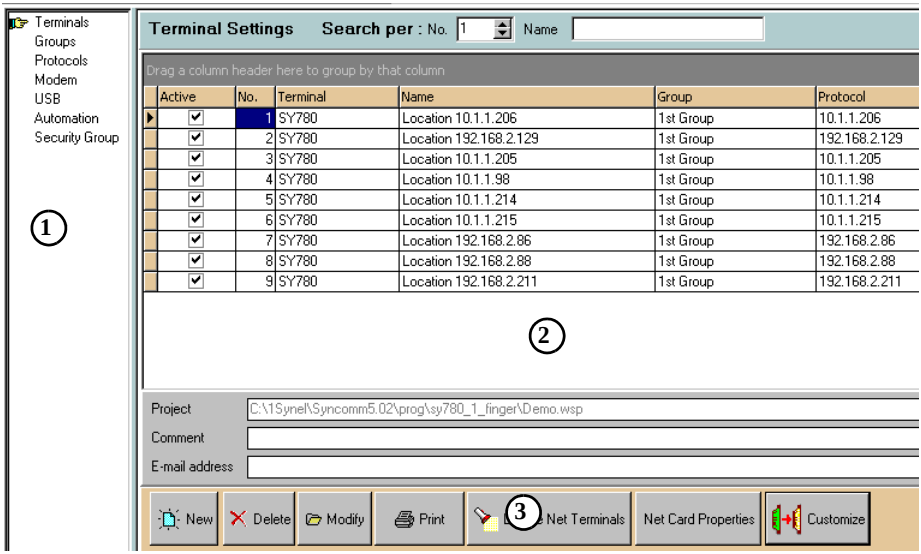
All SYncomm module screens share the top menu row. The row below the top row consists of its 4 modules.

Screen layouts differs between the **Activities** & **Set-up** module screens and the **Comm. Setup** and **Edit Program** module screens. The functionality of each module dictates its unique outline and design.

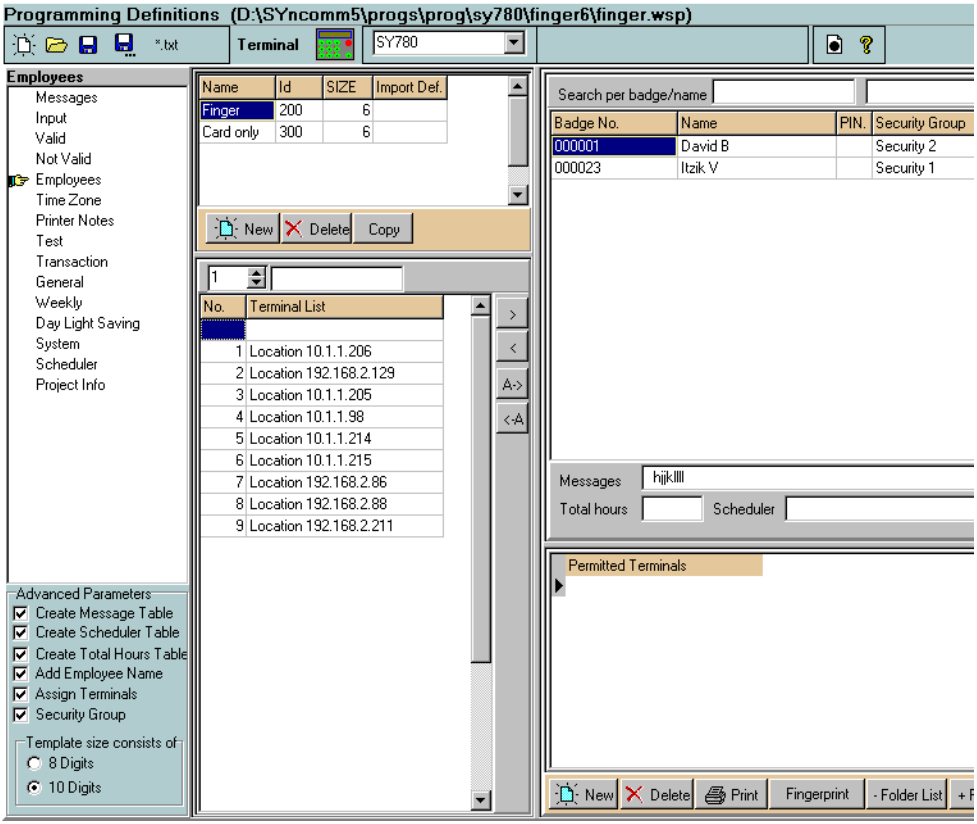
Comm. Setup and **Edit Program** are divided into three primary parts:

1. Left side - Logically outlined definition parameter topics. By pointing with the mouse at either topic, its body screen will appear.
2. Right side - The body screen of each definition parameter. In this screen you can fill-in or choose the relevant data.
3. Bottom - specific screen buttons that enable editing the information on the body screen or perform a relevant activity. Such as locating net terminals in the **Terminals** screen see page below:

The **Comm. Setup** contains definition folders for communication parameters.

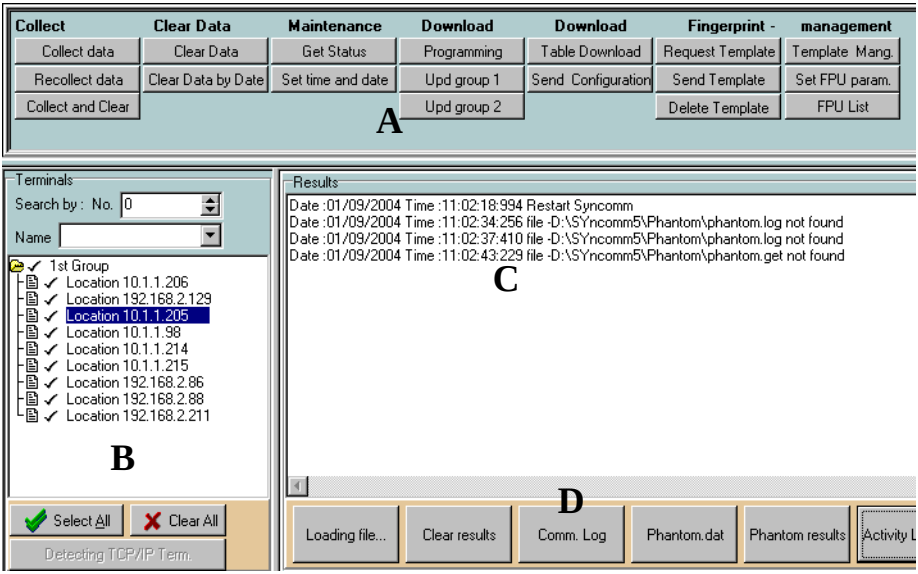


In the **Edit Program** screen the user chooses a terminal from a terminal type list, and can generate a project. A project includes all relevant access control/ jobs/T&A definitions for that specific terminal.



Activities and **Set-up** module screens are unique:

From the **Activities** module you can perform and follow-up effectively, on numerous communication activities.



Navigating the Activity screen

The Activity screen is divided into four sections:

Section A - The command buttons section which enables communicating with the terminals. The Automatic activities are activated when pressing the **Start** button.

Section B - Presents a terminals groups expendable list. This list was pre-defined in **Comm**. **Setup**. Selecting one or more groups from the list, and than pressing one of the activity command buttons in section A, will make this command to be implemented on the selected terminals.

Section C - A display screen for each of the required files in section D pertaining mainly to activity processes analysis.

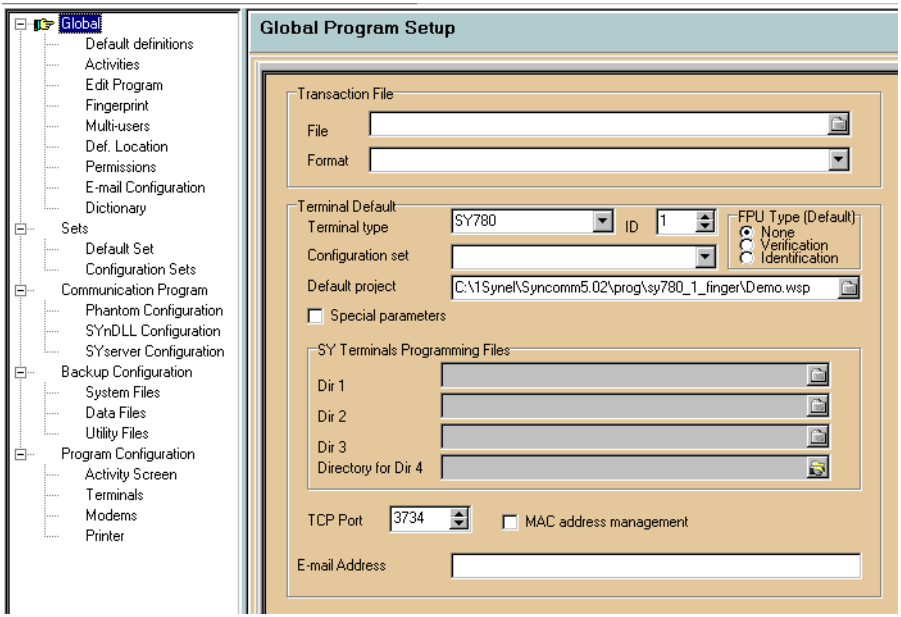
Section D - Enables access to the communication data and logs, present various file types.

SYncomm activities

SYncomm commands are organized in a tool bar, applying a command provides for terminals communication and tasking.

Collect	
Collect Data	Collection of transactions from active terminals, since previous collection.
Re-collect Data	Collection of transactions including those already transmitted.
Collect and clear	Collection of transactions from active terminals, since previous collection. After collecting the transactions are cleared from terminal.
Clear data	
Clear Data	Clear transactions from terminal buffer.
Clear Data By Date	Clear transactions from terminal according to registered transaction date.
Maintenance	
Get Status	Confirm communication connection.
Set Time/Date	Set terminal's time and date.
Set FPU parameter	FPU global threshold, such as: very high-low or slave/master.
Download	
Programming	Send an application to active terminals.
For SY terminals only:	
Update Group 1	Updating terminal's group 1 by sending specific tables.
Update Group 2	Updating terminal's group 2 by sending specific tables.
For COM I/II/II Pro, TA78, Tango, TimePLUS only:	
Table download	Updating terminal by sending ascii files to terminal.
Send configuration	Send terminal configurations.
FPU management	
Request template	A storage designated for end-unit template on the host computer. Transmits a request from the host computer to transfer a template from the end-unit.
Send template	A specific template file path on the host computer for transfer.
Delete template	The unrequired template is deleted from the end-unit.

The **Set-up** screen should be handled by a programmer only, as it requires a profound understanding of programming implementation. For further information refer to “Set-up” on page -31.



3.2. Setting-up Your SYncomm System

SYncomm setup is performed using task bar buttons located at the lower screen part or by right clicking on the active screen to display the context menu.

3.2.1 Communication setup

Terminals

After you have mounted your terminals at their various locations and set-up all relevant terminal parameters (for further information refer to the respective Synel manuals), you should define them in the software:

Step 1. Under **Comm. Setup**| **Terminals** define terminal Comm. ID, type, protocol (you can insert all protocol definitions within the **Terminal Setup** screen by clicking ). Do so, for all the terminals you have set-up. Make sure the **Active** check box is marked.

Step 2. To check the communication between the terminal and SYncomm, go to the **Activities** screen and press the **Get Status** button. Make sure all defined terminals appear in the terminal list.

Communication

SYncomm can communicate with Synel terminals using the following protocols: local, modem, TCP/IP, RS485, see “Communication setup” on page -11.

Programming

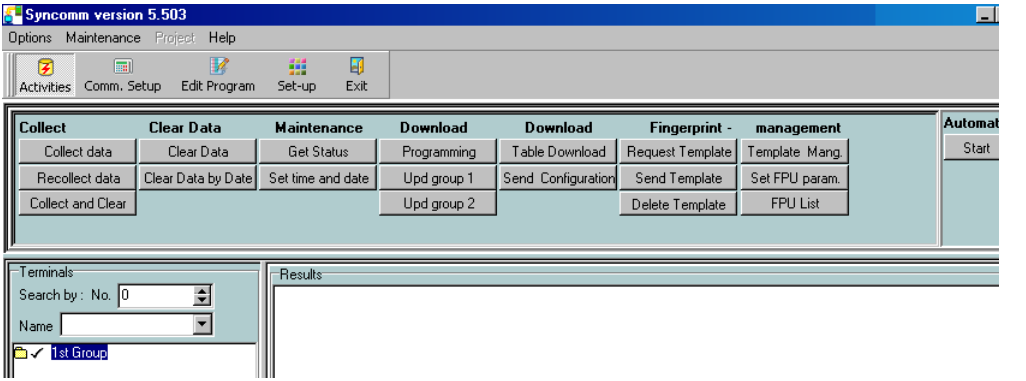
Now we must define the terminal’s operational parameters which means we must program the terminal. In SYncomm you must create a project. The project incorporates overall definitions required for the terminals full functionality. In principle you should Follow the guidelines below (for further information see “SY-780/A Programming” on page -50):

- Go to **Edit Program**, choose the relevant terminal type and click on the **New** button.
- Then click the **Save As** button. Open a new folder under **SYncomm**| **PROG**. SYncomm automatically generates basic programming files and a dbf folder (SYNcomm’s database). These will be customized by the user.

- On the left hand side of the screen review all the programming screens: Messages, Input, Valid etc. and fill-in the relevant information.
- You must define your project considering the specific terminal hardware specifications. According to these you will define what information the terminal can decode (Input).
- To enable employee reporting you must define function keys (under Transaction+ General) and you must import / insert manually an authorized employee list.
- Define how the terminal will validate each employee's input data under **Test**.

3.2.2 Activities

SYncomm common operations are accomplished via the *Activity* screen. Practically launching, all of the activities undertaken between SYncomm and terminals. The pre-defined parameters within the three Programming Modules: **Comm**. **Setup**, **Programming**, **Program Setup** are directed to the activity module operation and performance.



It is possible to change Activity buttons under: **Set-up**| **Program Configuration**| **Activity Screen**.

Right-Clicking the Command Panel

Command Panel 1/2	SYNcomm enables creating 2 command buttons. Only one can be visible.
Communication Program Enabled	Communication can be disabled or enabled.
Use Phantom/SYNDLL/ SYServer	You can choose which communication program will be used. For further definition see “Communication Program” on page -39.

Results window section

Right clicking on the results screen or selecting a button from the vertical tool bar, enables various display options:

Clear	Clears text in display screen.
Save as	Saves the display contents to a file.
Phantom File	Define Phantom as the communication program.
Show	Select a display option, expand **Show** a submenu lists display options; Progress, Log Activity, Status, Group collection statistics, Terminal Error Statistics.

The vertical tool bar option, as follows:

Clear result	Clears information presented on the result screen.
Log file	Display log file content on the result screen
Tables.dat	Display terminals programming tables path and content on the result screen
Phantom.dat	Display phantom programming definitions, on the result screen.
Phantom Result	Display communication messages
Load file	Browse to edit an external file.

Show Results (right click)

Progress

Activity default display screen, summaries activities and communication data.

Log Activity

Present a grid option listing all the accumulated activities. Log can be filtered according to active terminals or present only errors.

Status

A grid format listing the current terminals status, this grid include active terminals.

The following lists terminal's performance details:

Full buffer	Number of full buffers, data transactions up to 128bytes. Completed or uncompleted transactions are considered.
Error buffer	Number of faulty buffers, include faulty transaction deposited.
Send buffer	Number of full buffers sent and not cleared, all records transmitted to the host will be considered.
Empty buffer	Number of empty buffers, excluding the above calculated buffer size.
File size	Memory used for tables

Group statistics collection

Displays Activities performed by Groups of terminals. You can choose to view Group Statistics in graph view or in tabular form.

Terminal Error Statistics

A comparison graph, present each terminal as a bar.

Terminals section

The terminals displayed in the terminal list were predefined under **Comm**. **Setup** module under **Terminals**. To view a terminal within a group, double click on the group folder and expand the list. Clicking on one of the terminals from the list marks it, the check mark indicates that the terminal is active. Multiple selection is performed by using the buttons on the right of the **Terminal** list:

After you locate your terminals (according to number, name or TCP/IP terminals) by clicking the **Detecting TCP/IP Term.** button In this section you can choose on which terminal/s you can perform an activity. The terminals are displayed per groups. The **Terminal Setup** screen is available when marking the terminal and right clicking.

3.2.3 Terminal type activity chart

The various terminal types managed via SYncomm use different activity commands settings. SYncomm provides an array of commands, few are compatible with all terminals and others are designated for a specific terminal. The following table list command usage according to terminal type:

Command	**SY/**					
	100	**400**	**711/755**	**715/755**	**777**	**780**
Collect Data	X	X	X	X	X	X
Re-collect Data	X	X	X	X	X	X
Collect and clear	X	X	X	X	X	X
Clear Data	X	X	X	X	X	X
Clear Data By Date	X	X	X	X	X	X
Get Status	X	X	X	X	X	X
Set Time/Date	X	X	X	X	X	X
Set FPU parameter						X
Programming	X	X	X	X	X	X
Update Group 1	X	X	X	X	X	X
Update Group 2	X	X	X	X	X	X
Table download						
Send configuration						
Request template						X
Send template						X
Delete template						X

Command	COM			TA		Master	Tango	Time Plus
	I	II pro	Ten	71	78			
Collect Data	X	X	X	X	X	X	X	X
Re-collect Data	X	X	X	X	X	X	X	X
Collect and clear								
Clear Data								
Clear Data By Date								
Get Status	X	X	X	X	X	X	X	X
Set Time/Date	X	X	X	X	X	X	X	X
Set FPU parameter								
Programming	X	X	X	X	X	X	X	X
Table download	X	X	X	X	X		X	X
Send configuration	X	X	X	X	X		X	X
Request template								
Send template								
Delete template								

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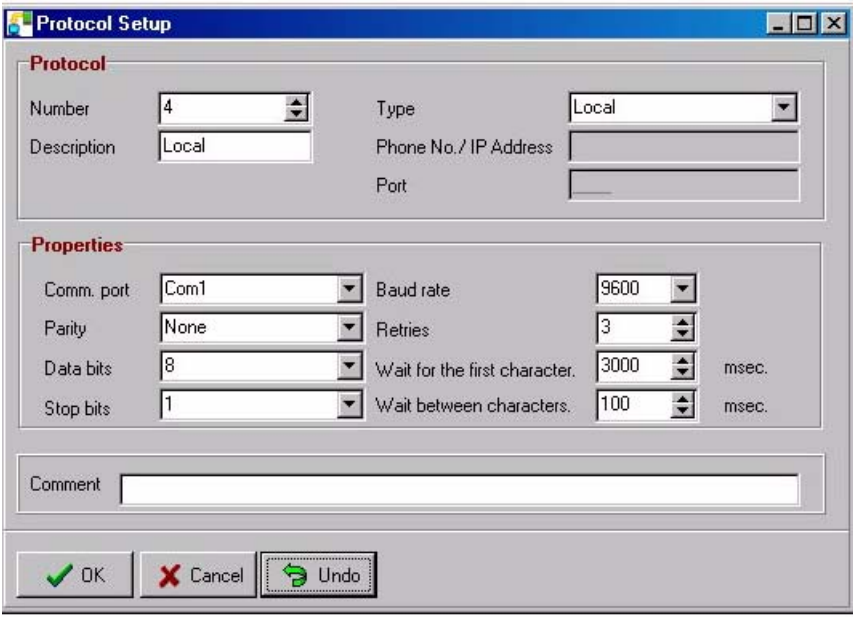
Chapter 4 - Communication setup

This screen integrates all communication devices and mediums and enables setting all hardware related parameters as follows:

4.1. Protocols

An agreed-upon format for transmitting data between two devices. Please find the **Protocol Setup** screen below:



SYncomm is compatible with the following communication protocols: TCP/IP, RS-485, modem, UDP.

Step 1. Select **Protocols** from the list, the **Protocol Setup** screen appears (above).

Step 2. Fill-in the fields as per the explanation below:

The screen is divided in to 2 sections as follows:

Protocol - protocol specifications

Number	When clicking **New** the system automatically registers a consecutive number to the last protocol entered. Still the user can manually change this number.
Description	A designated name to distinguish a specific protocol from other protocols.
Type	Protocol types available: TCP/IP, modem, local, RS-485.
IP address	the designated IP address or a telephone number (when using a modem).
Port	Host number when using the TCP/IP protocol (generally is set to 3734).

Properties

Comm port	Com 1, 2 upto 8 (irrelevant for TCP/IP)
Parity	Parity checking refers to the use of parity bits to check that data has been transmitted accurately. The sending and receiving devices must use the same parity.
Data bits	No. of bits in a data block (7,8).
Stop bits	No. of bits for signalling the end of data block (1,1.5,2).
Baud rate	Communication speed (1200, 19200).
Retries	No. of attempts to resume communication
Time-out	Time interval until receiving the first character.

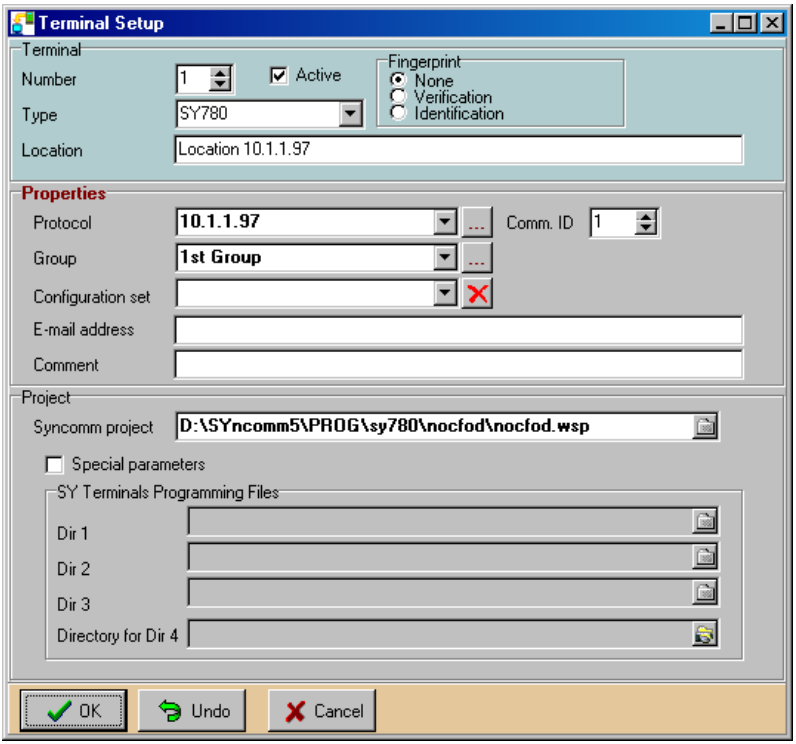
Comment - An optional field for the user's convenience.

To **modify** existing protocols, double click on the particular protocol; the **Protocol Setup** screen appears. Fill-in the new information and then click **OK**.

Customize- You can drag and drop columns from the body screen's grid and they will be stored there.

4.2. Terminals

Unlike **Groups**, the **Terminals** folder enables handling terminal configuration/programming individually.



To define a new terminal or modify existing terminal definition click the **Terminal** folder then click either **New** or **Modify**/ double click relevant line.

The **Terminal Setup** screen is divided into three sections:

Terminal

Number	A unique number associates the device's actual location with the programmed settings, it is used in the header as a reference.
Type	Select the required terminal from the list.
Location	Terminal actual positioning in the facility.

Active	When a terminal in not active it serves to enable performing maintenance activities and system re-organization tasks.
Fingerprint	For SY780A terminals only! Fingerprints can be sampled to be used either for identification or verification: Complimentarily, you must go to **Set-up | Global | Fingerprint** and define other FP related parameters.

Properties

Protocol name	Give the protocol a name.
Comm. ID	COM port ID number used as an interconnection with a particular terminal - Synel: 0 - 31, Linear: 0 - 255.
Group	Assigning a predefined programming group (project+configuration set).
Configuration set	Enables assigning a different configuration set than the one chosen under **Groups** for this group. See “Groups” on page -25.
E-mail address	Fill-in an e-mail address, for notification when an error occurs (using this module requires pre-definition). The default e-mail address is defined under **Set-up | Global | E-mail Configuration**.

Project

For programming you can either choose a project path as follows:

SYncomm Project	Refers to the programming project which you defined under Edit Program (a *.wsp file).

Or use special parameters as follows:

Special Parameter check box	For SY terminals only. You can assign upto three programming files per terminal. when checked provides an interface to an external programming file.
For SY Family	Dir 1, Dir 2, Dir 3- three external programming files, these options enables performing independent programming.
Directory for Dir. 4	Terminal-employee specific assignment definitions will be saved under this directory.

4.2.1 Navigating the terminal module

To select terminals list display options, terminal status or statistics right click

on the terminal definitions screen to present the context menu.

	Active/Not active	**ON/OFF** option activates or de-activates terminal
Modifying terminals definitions	Insert/Modify	Invokes terminal setup menu enables to insert a new terminal or modify an existing terminal
	Delete	Delete a registered terminal
Editing definitions	Print	Use the default printer to print out the current screen
	Copy/Paste	Applying an existing setup to a new terminal

Display	Grid format	Terminal list is arranged in a table format, each row contains a terminal.
	Logical tree view	Terminals are organized in an expendable list. Clicking on the plus sign reveals terminals related to a specific group.
	Physical tree view	Terminals are organized according to communication types; Com, TCP/IP or modem.
Badges/Templates assigned to terminal/s	Enables displaying a list of the fingerprint templates stored in the terminal's memory (verification??).	

Customizing column

- Adding/removing columns from terminals grid format. Press **Customize Fields** on the lower tool bar. A submenu presents drag title and place it on grid header (two arrows marks position). Revers procedure to remove a title
- Categorize terminals grid according to a pre-defined column header. Press on **Customize Groups**, a submenu is displayed. Check the requested category and press **Apply**.

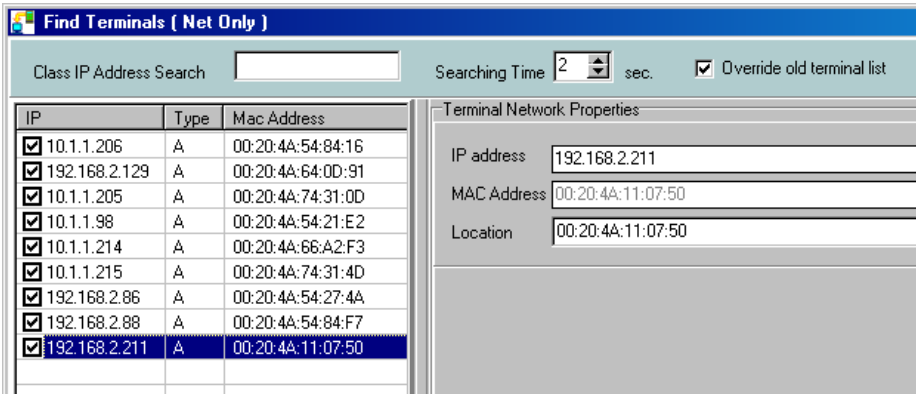
4.2.2 Locating Net Terminals

The **Find Terminals** screen enables:

1. Locating live terminals to be defined in the software using the **Search** button, than you can **Update SYncomm DB**.
2. **Class IP Address Search** (determines how many works tat ions can exist on a network) Address Search (range of search): the default address value assigned is class A. You can fill-in a class type only for classes B or C.

Type A net card (10Base):

Only the location name can be changed.



Type B net card (New) (10/100Base):

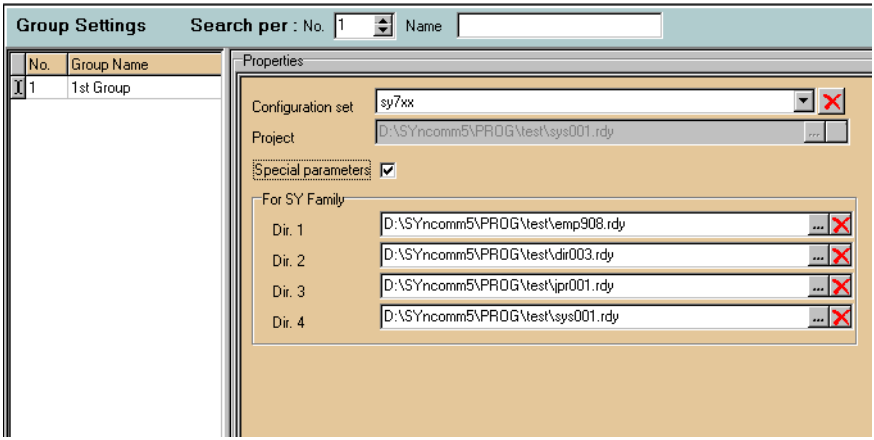
In addition to the location, the following parameters can be changes within SYncomm:

Server settings- Subnet, Gateway, Local port

Client settings- Server IP, Port

4.3. Groups

For the purposes of easy access, time saving and overall maximum efficiency in programming and retrieving information, you can group terminals as per a terminal configuration set (see "Sets" on page -38). Under "SY-780/A Programming" on page -50 you can learn how to create a project for SY-780/A or any other terminal type. This allows you to deal with multiple units rather than dealing with each terminal separately. For example, if you have terminals located in different cities, you can create a different group for each city. Other scenarios could be grouped according to shifts, or tasks, etc.



Alternately, you can also define different project for the same terminal type.

To create a group you must name it and give a reference number. To enter a second name and number, click once on the down arrow on your keyboard or click **New**; a new line will be created with the corresponding fields for entry.

Terminal programming can be performed using a SYncomm project, or by interfacing external programming files. Select programming files using the browse icon as follows:

.

Project	The SYncomm project file path (a *.wsp file).
Setup File	Provides an option to associate a configuration set to a particular group of terminals.

Special Parameters	Check box **ON/OFF** option, when checked provides an interface to an external programming file.
For SY Family	Dir 1, Dir 2, Dir 3 three external programming files, these options enable independent programming. For example: Dir 1 - Main programming table, Dir 2 - Project programming table, Dir 3 - Authorized personnel table.

After you have finished defining all parameters click the **Copy to Terminals** in order to send the updated configuration to all terminals belonging to the same group.

4.4. Modems

This module contains all of the parameters required to configure an internal modem. Upon completion remember to press **Save** to except the definitions.

Select a **Modem**, the **Modem Definitions** list screen is displayed, it is composed of four folders, as listed:

Init.

The Init. (Initialization) folder contains modem init string. This folder is set as the default folder. Modem initiation sequence is required for:

- Disabling error correction
- Disabling auto baud rate
- Disabling data compilation
- Defining a fixed baud rate (2200, 2400, depending on the terminal)

There are five initiation sequence options, If the default init. String is not applicable to your system the string can be modified.

Press on **Choose modem**, a submenu containing modems list enables to select the required modem and baud rate.

Dial

Dial prefix	The modem commands that invokes the modem to initiate a dial on the remote modem. These commands are sent to the modem before sending the dial address.
Connect String	This result code indicates that a connection was established.
Dial suffix	The modem dialling commands that are sent to the modem following the dial address.

Disconnect

Disconnect command	A defined disconnect command.
Disconnect String	This result code that indicates that the modem has been disconnected.
Escape guard time	Sets a period of inactivity to precede and follow the escape sequence that was configured using the set escape-sequence command.
Escape character	Promotes the modem command mode after a present online mode, that is without closing the connection.

Global

Retries	Number of modem riddles after failure to communicate.
OK response	When the modem has successfully executed a command defines the confirmation string.
Prefix string	An identification string which will precede every string sent from the modem.
Time-out dial	Waiting time before dialing in milliseconds.
Time-out wait	Waiting time for a reply in milliseconds.
Reset character	A character that will refresh the modem.
Carriage return	Terminates command lines and result codes.

4.5. USB

A standard that supports data transfer rates of 12 Mbps. A single USB port can be used to connect up to 127 peripheral devices. Supports also Plug and Play installation.

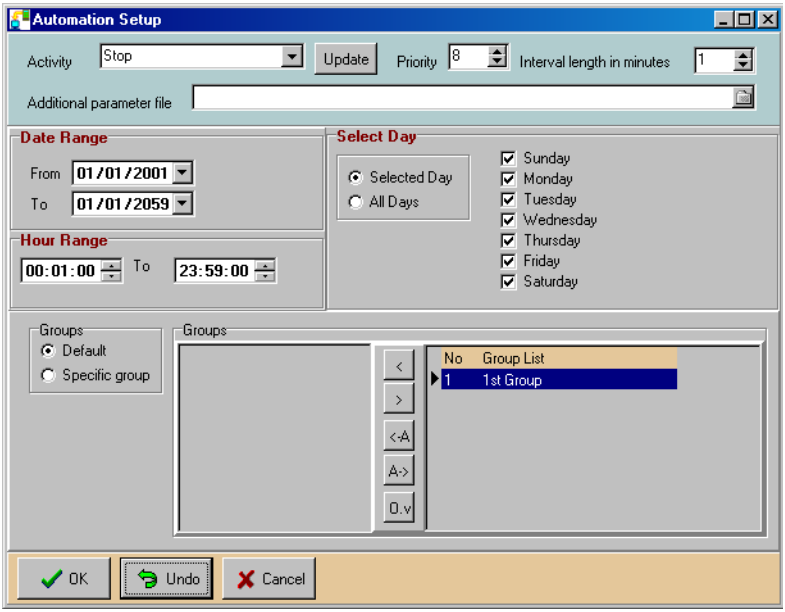
Data	Define communication parameters.
Handshaking	When two devices send several messages back and forth in order to establish an “agreement” on which communication protocol will be used by each.
Special Chars	Which special characters will be allowed.
Time-out	Waiting time for USB reply.

4.6. Automation

The purpose of the **Automation** screen is to enable automatic performance of the various defined **Activities** as per a defined schedule. This is an advantage and is most useful when used during after work time, when the system's resources are more available.

The **Automation Settings** screen enables editing the parameters of a particular activity within the framework of a specific group, overriding the settings laid out in **Terminals** under **Comm. Setup**.

Click **New** to add a new activity or **Modify** to update an existing activity; the **Automation Setup** screen is displayed:



If you need to execute a program you must fill-in or choose the relevant program path in the **Additional parameter file** field.

Note: *If you set the same priority for two different activities SYncomm will activate them randomly.*

The Activity list contains communication and automatic commands which

are defined under “Activity screen” on page -40.

In the **Priority** field choose a number to determine the priority level of the Activity - “0” equals the highest priority. This field is used when activities are initiated simultaneously.

In the **Length of interval in minutes** field, enter the amount of time that should pass between activities.

In **Date range**, **Hour range** and **Select day**, you can define the time range in which this activity is operated. Assigning an activity to a group is defined by selecting In **Group** default for all the listed groups or specifying a group by checking one group from the list. Press **OK** to accept the automated activity, the Automatic setup screen lists all activities in a grid format.

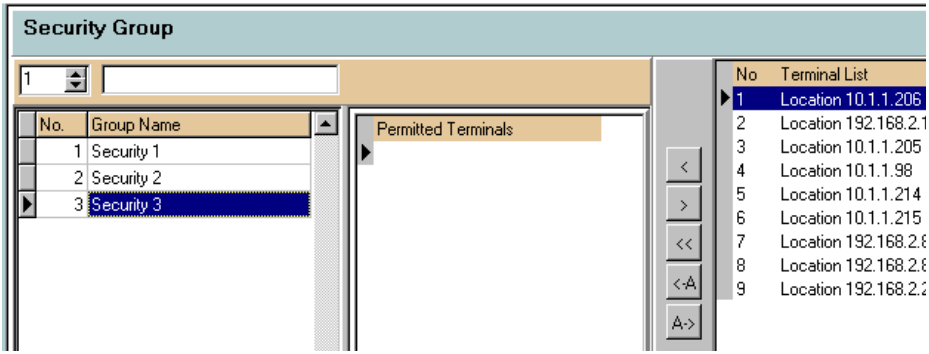
Groups- the user can assign a terminal configuration group to an activity. This way, the activity will be performed on all terminals pertaining to that group as per the defined schedule.

Customizing the automation screen

Click on the **Customize** button at the lower part of the screen; the **Customize** window is displayed. Customizing is performed simply by dragging the bands from the **Automation Settings** screen into the **Customize** window under the **Bands** tab and the headers into the **Headers** tab. These fields will be removed from the **Automation Settings** screen to the **Customize** screen. In order to replace the bands and headers drag them back.

SYNcomm can be run in automation mode under **Run** or by: right clicking the shortcut icon | **Properties** and adding under the software path under the **Target** field: “/a”.

4.7. Security Group



Enables allocating terminals to permission groups as per the user's requirements (access control, location in your facility etc.). These groups will later be used when a project is created in the **Edit Program** module.

Chapter 5 - Set-up

All of the information used and gathered via SYncomm is stored in various files. When SYncomm works, it is constantly accessing, retrieving and updating these files. Under Set-up you can define how, where and when this information will be stored. Also, here you can determine all system default definitions.

Below please find outlined mandatory elements:

- Various communication programs configurations
- Language translation options
- Terminals and modems
- Firmware upgrades
- Fingerprint verification
- FP Verification/Identification
- User access permissions
- E-mail
- Activities
- Additional automation parameters

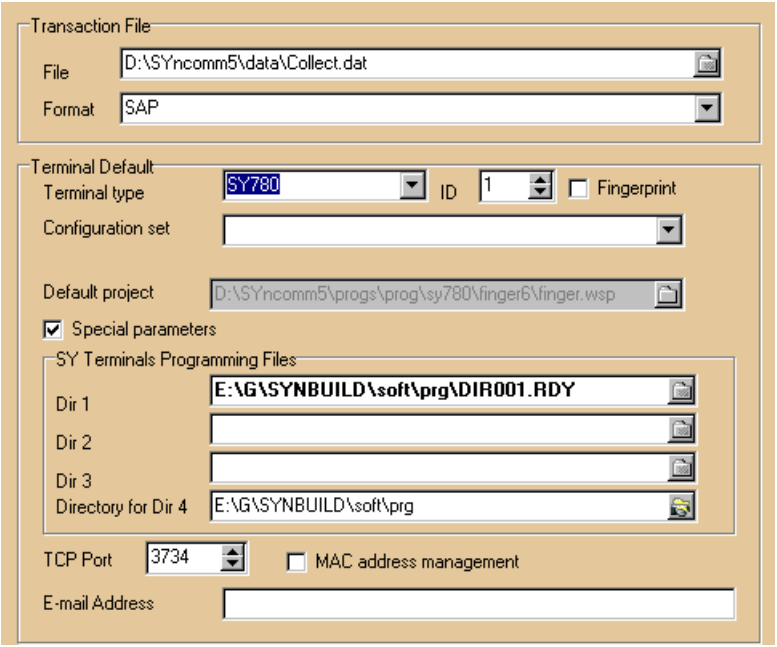
5.1. Global

Used for various configuration purposes:

5.1.1 Default definitions

These default definitions typify all active terminals and transaction basic configurations.

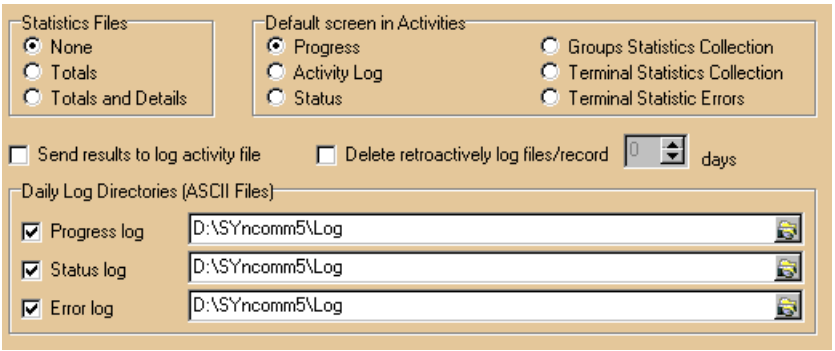
All hardware default definitions can be configured here. Terminal specific definition overlapping default definitions will override them. For further information please refer to “Terminals” on page -21.



5.1.2 Activities

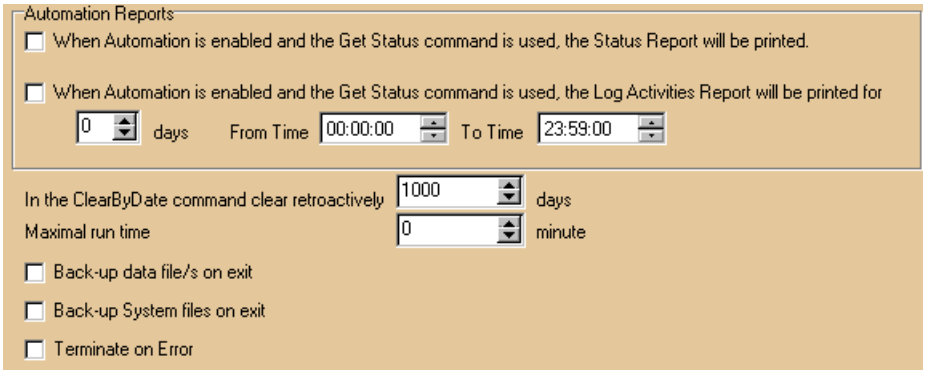
This folder is divided into 3 tabs: **Logs**, **Automation**, **Files** as follows:

The **Logs** screen is a default layout and routine logging/back-up operations performed on the **Activities** screen are set-up here.



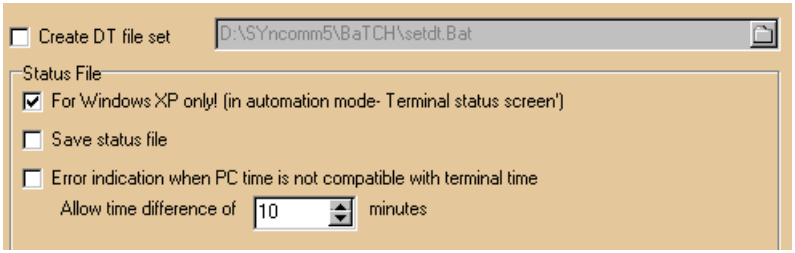
The **Automation** screen is managing automation related extra activities. For basic automation definitions refer to “Automation” on page -28.

Here you can define command related printing activities and other automation parameters.

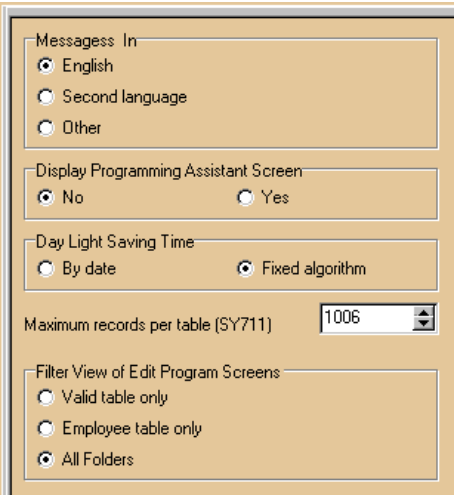


The **Files** screen consists if the following:

Create DT file set - After data collection SYncomm creates an ASCII file indicating date and time of procedure - optional.
Status File- Refers to all terminals currently active:
a. For users using the XP operation systems only!
b. If you mark the **Error indication** check box, an error message will be displayed whenever there is incompatibility between PC and terminal date&time.

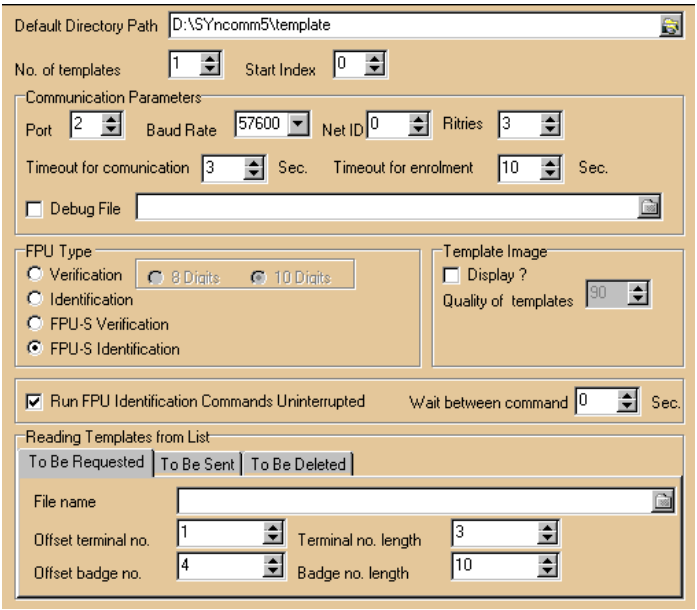


5.1.3 Edit Program Configuration



Messages	Determine messages interface language.
Programming Assistant screen	This screen outlines the guidelines for the programming of SY711/751 terminals. Click the  button.
Day Light Saving Time	Enables maximizing the usage of daylight. Time adjustments can be made **By date** or according to international standards- **Fixed algorithm**.
Maximum records per table (SY711)	For SY711 terminals, 999 records per table is the default.
Filter view of edit program: The Valid table includes less data (only card numbers), therefore more employees can be sent.	

5.1.4 Fingerprint



For elaborate description and usage instructions of the fingerprint feature refer to “Fingerprint” on page -73.

When sending and requesting templates it is possible to filter from which terminals and the card size.

This feature is currently implemented in the SY-780 terminal only!

Note: *No. of templates can be two only for verification FPU. All other FPU can enrol+verify only one template!*

Note: *Card number can be either 8 (old terminal verification only) or 10 characters (for all other types).*

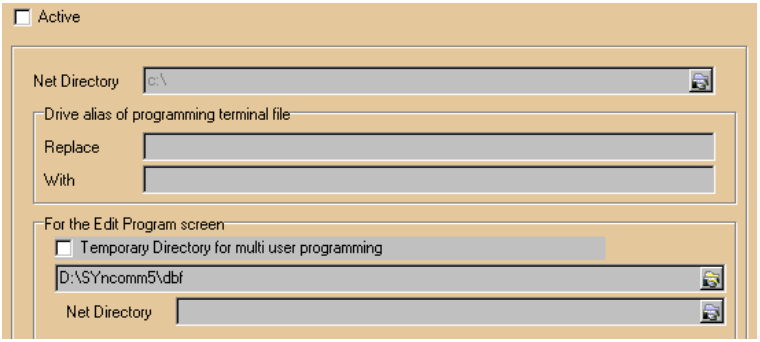
5.1.5 Multi-users

This feature enables performing programming for more than one PC simultaneously. For further information on multi-user installation refer to “Multi-user installation” on page -5.

Net directory- SYncomm’s multi-user installation location (server).

Drive alias of programming terminal file section- Enables adjusting drive mapping per PC to the actual project alias.

For the Edit Program screen section- Enables creating a temporary database, to allow more than one user to work on the same project.



Note: *Use the Net directory field to fill-in the same alias for all participating PCs (for either system files or programming files).*

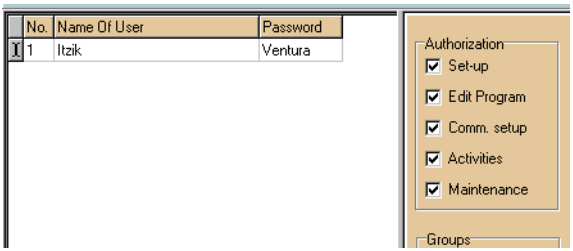
5.1.6 Default Locations

Determine here where WinJtrans/MPL builder/Translated files will be stored

5.1.7 Permissions

Enables assigning a password to each employee per employee name. Access

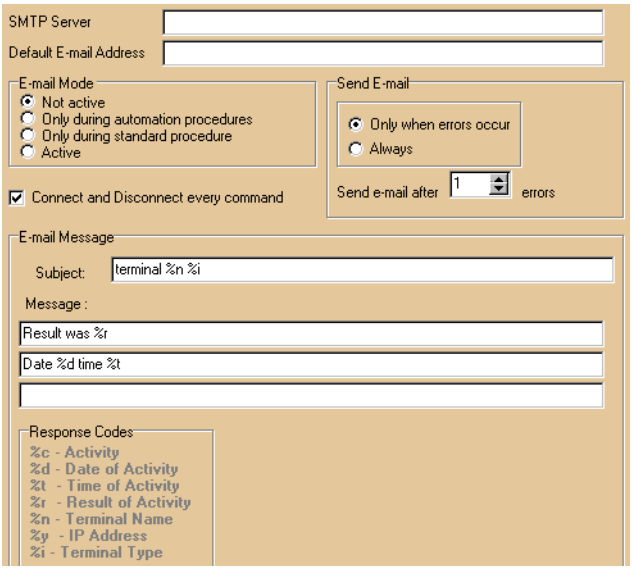
levels are given per software modules (focus on Activities).



5.1.8 E-mail Configuration

SYncomm can send e-mail messages to the operator at various stages of SYncomm operation. You must fill-in the IP address of your SMTP internet supplier - it will be used as a default for all terminals. You can determine when to send the e-mail message.

You can assign a specific address per terminal under: **Comm. Setup**| **Terminals** or under **Set-up** | **Default definitions** | **E-mail Address** for all terminals as a default address.

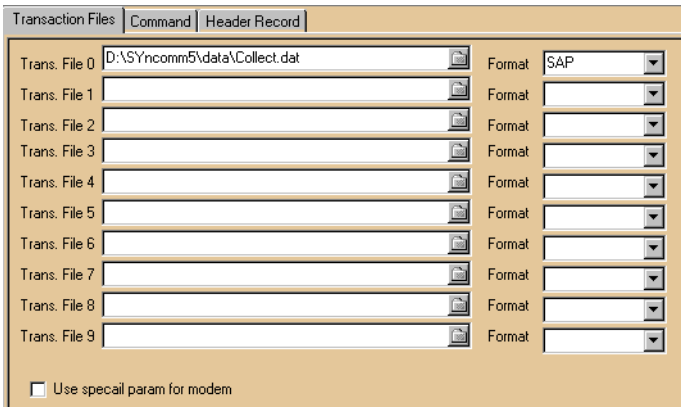


5.2. Sets

As per the terminal type, the user can create configuration sets to manage transactions storage and format:

- For Synel terminals there is a fixed format.
- For Linear terminals there are 10 format types as per terminal type and application and commands (for Linear terminals only).

5.2.1 Default Set



Here you can create one default set to manage your hardware communication.

Transaction files

A transaction file folder contains standard transaction activities. For the Linear terminals you can define different parameters unique to your requirements. It is possible to collect all transaction activities to one file, or, you can create a number of files for this purpose while using different (customized) parameters for different activities. For Synel terminals use only **Trans. File 0** field. You must fill-in an existing format from the Phantom script file. Browse to the file directory and select a transaction file/s. Click **Save**.

Command (Linear only)

Additional Phantom commands can be defined using this screen further to those detailed in the **Activities** screen. Press **Save** to accept communication.

Headers Record

Headers are characters which define terminal and transaction identification and are presented at the beginning of the block. The various header characters can be included/excluded.

Date/Time	On/Off check box to include/exclude date/time on the header.
TCP IP	On/Off check box to include/exclude IP address on the header.
System string	On/Off check box to include/exclude message (when this option is pre-defined). The field right to the check box contains the string.
Terminal no.	Check off this box if you wish the terminal number to appear in the header. In the field to the right you can enter the number of positions to be used by the terminal no. (Between 1-3).

5.2.2 Configuration Sets

Here you can create various configuration sets to manage your hardware communication as per terminal type, see “Default Set” on page -38.

5.3. Communication Program

SYncomm communicates with terminals using special, communication programs as follows: Phantom, SYnman and SYNDLL.

Note: *Only Phantom is compatible with all terminal types.*

5.3.1 Phantom Configuration

A 32 bit multi-functional communication program that operates with most data collection terminals manufactured by Synel. It contains fixed scripts and commands for transmitting programming to the terminal.

Choose the relevant directories for installation and storage of Phantom’s programming/log files.

Storage of the various communication files is defined here: log, message, programming, back-up files etc.

Continue in case of an error- Yes/No selection, the system continues working even though communication with the terminal is disconnected.
Y= Phantom continues running and an error message is not displayed,
N= Phantom stops running and displays an error message regarding a communication failure.

Show Phantom status window- this will enable viewing communication processes online.

Send one by one- send programming to the terminals one by one. This helps avoid an overload on communication procedures.

Press **Save** to accept communication.

5.3.2 SYNDLL Configuration

The SYNDLL contains functions that enable communication with Synel terminals, while freeing the programmer from the low-level protocol details.

Debug File- Choose the path for SYNDLL's debugging file.

Programming Windows Margins- Determine the dimensions of the SYNDLL progress screen.

Note: *Using SYNDLL enables viewing progress per terminal. You can view progress when programming!*

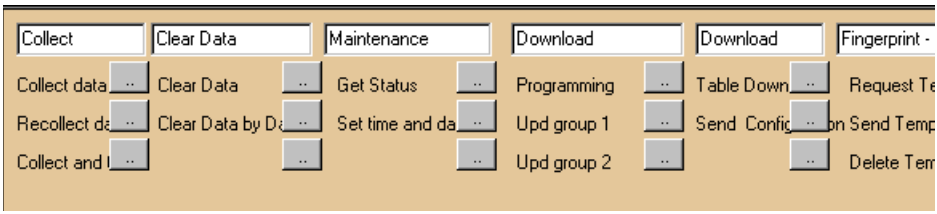
5.4. Backup Configuration

Enables back-up of **System**, **Utility** files and a routine back-up of **Data** files. It is recommended to perform backup operations after work hours to avoid overloading system resources.

5.5. Program Configuration

5.5.1 Activity screen

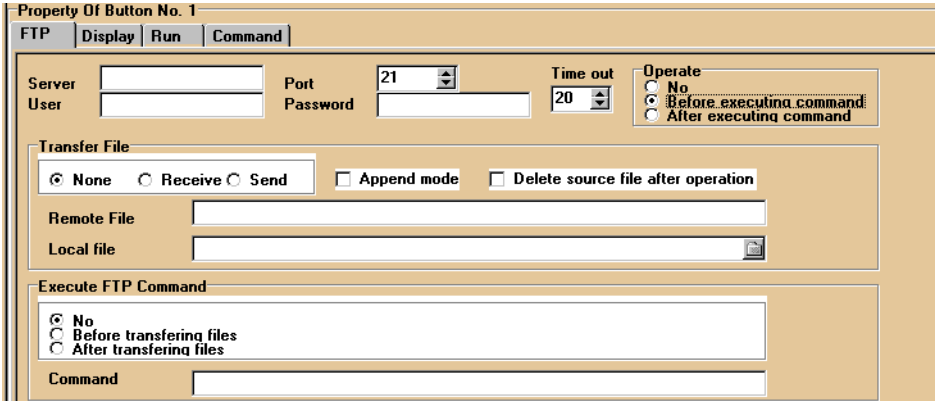
The top section of the Activities configuration screen is the top panel displayed on the **Activities** screen. Here we can rename the buttons and change the communication commands. To change a button click ... . The lower section of the screen corresponds to the specific button you have just clicked - see the title reading: "Property of Button No. X.



The panel is used for applying the defined commands on all terminals.

Right clicking the command panel enables choosing **Automation**. The Automation panel is limited to 5 commands which are defined by default as **Not Active**.

FTP



This folder enables exchanging files over the Internet using FTP protocol. This required in cases such as: After data collection, the collect.dat file can be sent to the FTP site, or an authorized employee file can be retrieved from the FTP to be used locally etc.

Fill-in the **Password** and **Name** fields to enable editing data in the FTP (writing/copying).

Note: *Port-21 is an FTP standard port - do not change this value, unless you have an additional FTP port!*

Operate- Whether to download/upload from the FTP before or after executing the command.

Transfer file- Whether to move a file to or from the FTP at all. Appending or Delete refers to, when there is an existing file- Whether to add data to the existing file or to override it. Delete source file refers to the local file that was sent to the FTP.

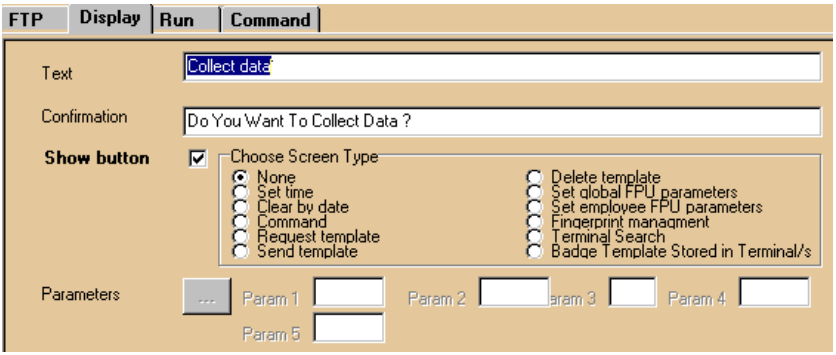
Remote file- the FTP file name.

Local file- the local PC file name.

Execute FTP Command- Running FTP commands- specially designated commands- consult your dealer!

Display

Fill-in the button title and a confirmation question before carrying out the activity if such is required. Then, match a sub-screen as per the relevant parameters to the button's function. See the screen below:



Run

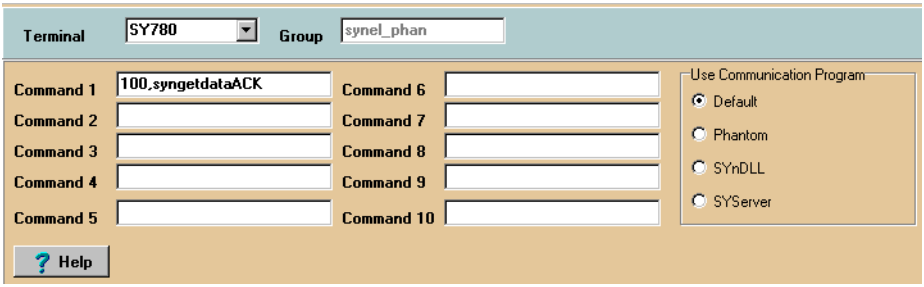
Enables running a batch file or an application before or after executing the command.

WinJtrans- Converts file structure, such as Synel transaction file to a different structure as per user requirements.

Command

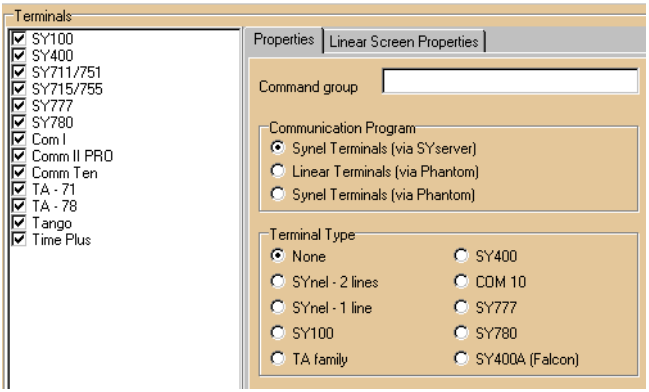
Similarly to the **Configuration set**, as per the terminal type, command structure is determined here. SYncomm knows the structure for each terminal. The **Help** button provides a useful index for command codes.

In Phantom and SYNDLL the command always begins with "100," followed by the command text (for further information you can refer to the SYNDLL manual or Phantom manual).



5.5.2 Terminals

Used for setting-up terminal configurations in terms of operation, form - see further documentation in SYncomm's technical manual. Enables removing any irrelevant terminals which are not in use, to avoid operator mistakes.



5.5.3 Default Modem

A inventory list of all available modems from which the user can choose a compatible modem in the **Comm. Setup**| **Modems**.
In the ISO modem (**New SY-780 Terminal Modem...**), launching string does not require cancellation of previous intricate modem options. The AT&FEOV1 string is compatible to all modem types. Whereas, other modems may require such adjustments as per the installed modem's technical specifications.

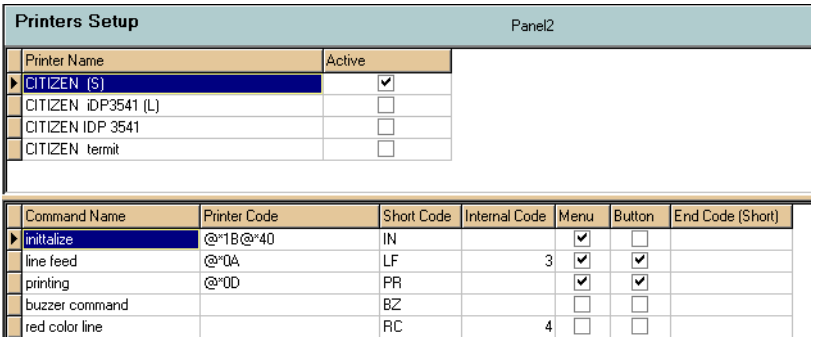
Modems Panel2

No.	Modem Type	File Name
0	New SY-780 Terminal Modem with Autobaud.	1440mdm
1	Boca 14400, 33600, 56000 for terminal modem 1200	boca.120
2	Boca 14400, 33600, 56000 for terminal modem 2400	boca.240
3	Dynamoed 33600 for terminal modem 1200	dyna.120
4	Dynamoed 33600 for terminal modem 2400	dyna.240

5.5.4 Printer

Basic printer definitions are setup here. You can activate an existing printer or add a new printer in the upper section, and configure it in the lower section. The outlined commands are instilled in SYncomm's MPL file.

The printer code can be found in the printer's user guide. You can copy existing printer definitions and change the relevant data manually.



Printers Setup Panel2

Printer Name	Active
CITIZEN (S)	☑
CITIZEN iDP3541 (L)	☐
CITIZEN IDP 3541	☐
CITIZEN termit	☐

Command Name	Printer Code	Short Code	Internal Code	Menu	Button	End Code (Short)
inittalize	@^1B@^40	IN		☑	☐	
line feed	@^0A	LF	3	☑	☑	
printing	@^0D	PR		☑	☑	
buzzer command		BZ		☐	☐	
red color line		RC	4	☐	☐	

Chapter 6 - Edit program

The programming module deals with overall terminal definitions. For each terminal type it is possible to edit a project. A project consists of rdy files (for a format description refer to the SAL manual), the SAL implements the instructions it is given by SYncomm's tables. The project also consists of a def directory and a *.wsp initializing file.

Programming parameters vary from terminal to terminal, yet the principle procedure is similar. Programming is compatible with each terminal's hardware apparatus and capabilities. Below please find a general outline:

6.1. Synel terminals

SY100

For this terminal it is possible to define:

Valid-	Authorized employee list
Non valid list-	Unauthorized employee list
Range-	A number range to be validated (card number, date etc.)
Anti-Pass-Back-	Prevents a card from being swiped twice in the same reader. Enables anti-pass-back for all readers pertaining to a specific Master.

For the following terminals it is possible to create a full programming project and characterize terminal behaviour when communicating with a reader/ sensor. Employee tables can be defined including validation of an authorized list, a PIN code and TZ (For further information on Time Zone refer to "SY-780/A Programming"):

- SY-400
- SY-711/751

In addition it is possible to define function key structure (1/16 display) and under Input- various terminal reactions to input exceptions.

- SY-715/755

It is possible to define function key structure (1/16 display) and under Input- various terminal reactions to input exceptions.

In addition a 2/16 display and a KB Input type.

- SY-777

It is possible to define function key structure (1/16 display) and under Input- various terminal reactions to input exceptions. Available also is a 2/16 display and a KB Input type and multi-step Input management.

- SY-780/A

It is possible to define function key structure (1/16 display) and under Input- various terminal reactions to input exceptions. Available also is a 2/16 display and a KB Input type and multi-step Input management. Also, this terminal enables fingerprint enrolment and validation.

6.2. Linear terminals

The following terminals are not programmable. In this case SYNcomm is used for sending the configuration parameters to the terminal.

	Tango	**TimePLUS**	**TA71**	**TA78**	**COM I**
Permitted	X	X	X	X	X
Category	X	X	X	X	X
Department	X	X			
Job	X	X			
Time Zone				X	
Time Zone Groups				X	
Bell	X	X	X	X	X
Automation	X	X	X	X	X
Messages		X			
Error Messages	X	X			
Days	X	X			
Function Keys	X	X			
Reports	X	X			
Printers				X	

The programming parameters listed below are common to Synel terminals:

Messages	Messages list (system errors, rejected or accepted activities).
Input field	Data format definitions and field properties.
Valid	Authorized files sorted according to badge format.
Non-Valid	Restricted files sorted according to badge format.
Employee	Presentable employee names, projects and codes.
Time zone	Scheduled time interval per group.
Test	Test definitions provided for each terminal function.
Transaction	Function keys description and transaction ID.
General	Terminal function keys position, general parameters and FPU sensor parameters.
Weekly	Daily terminal functionality.
Daylight saving	Enables scheduled daylight saving.
System	System parameters (Memory, control badge, date formats and terminal operation).
Scheduler	Function keys/Relay/Modem schedules.

COM II Pro

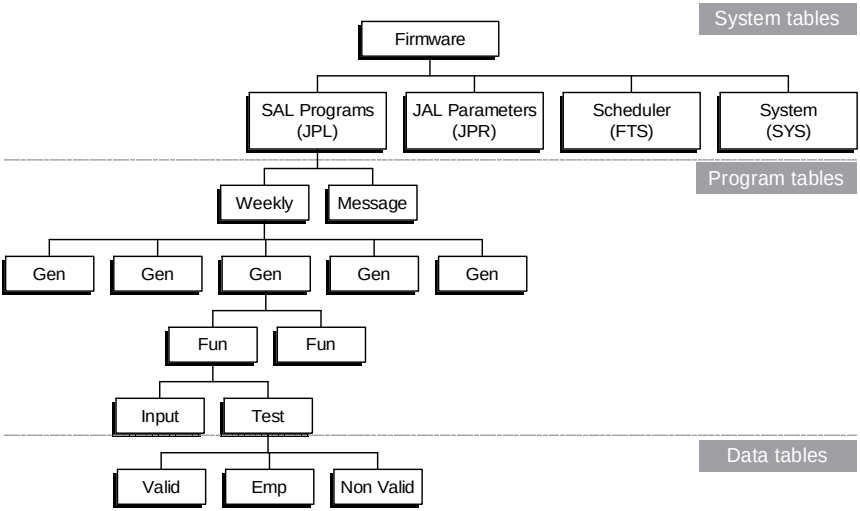
For programming the COM II Pro SYNcomm uses the TA-75 application Generator (also referred to as PEP). This generator enables creating ASCII tables and import them into SYncomm and viewing the data under **Database** tab.

Under the **Definitions** tab you can not make any changes other than:

- Day Light Saving Time
- Options | Memory fill in % - must be identical to same in PEP under: Tables | Event Handle | Memory Full Percent

6.3 SY-780/A Programming

Programming Flow Chart



There is an inter-dependency between the different *.jpr tables built by the SAL program which are the body of the application.

SYncomm builds the tables as per SAL requirements. On the next page please find a brief outline of the role of these tables.

The correct and logical order for building a project is to begin from the bottom of the flow chart as follows:

<u>Mandatory</u>

1. Input
2. Test
3. Transaction (Test + Input)
4. General (Transaction to Function Key)
5. Weekly (General to day of week)

Optional

1. Employee, Valid, Non valid - optional
2. Messages
3. Time Zone (to be linked to an employee)
4. Printer notes (i.e.: for meal labels)
5. Day Light Saving Time
6. System
7. Scheduler- for relay/modem activated function keys
8. Project info - general information which is not transmitted to the terminal

6.3.1 Messages

Fixed system messages. These messages can be edited or re-written.

6.3.2 Input

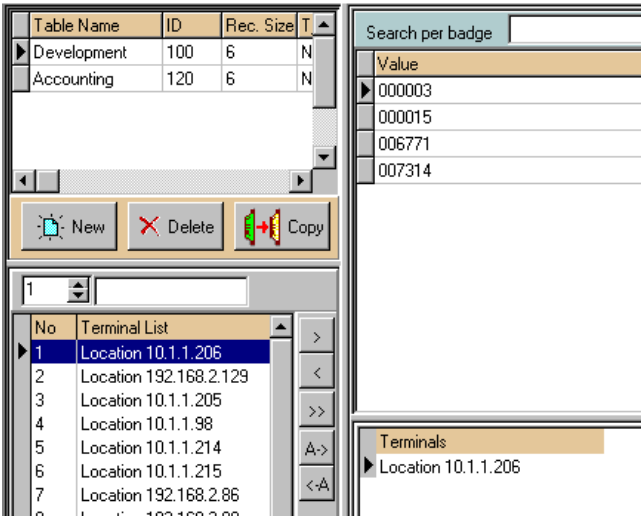
Enables defining upto 4 Input sources that typify a reader/sensor. Input sources are as follows:

Magnetic track 1 (ANSI)	Requires swiping of an employee card
Magnetic track 2 (ANSI)	Requires swiping of an employee card
Proximity	Requires placing the card upto a distance of 6-8 cm from the reader
Touch memory	A laser read identification code.
Bar code 3/9	
Bar code 2/5	
Bar code 128	
Codabar	
Keyboard	Using the terminals interface key-in card number.
Sensor 1	A sensor can activate either a buzzer or a LED.
Sensor 2	
Date	Validation of date format (input mask)
Time	Validation of hour format (input mask)
Scroll in list	A list to be displayed on the clock prompt from which the user can choose the relevant data (without card) and scroll using the arrow key.

Printer ready	Printer signalling input.
FPU Auto-identification	Enables defining fingerprint identification only (no card fixed 10 char.).

6.3.3 Valid

An list of IDs of authorized cards. See screen in the page below:



Please note that the IDs indicated in the **Employee** (see “Employees” on page -53) table and the valid table must be identical!

The Valid screen is used for defining and determining access levels for each employee:

Step 1. Fill-in the Valid table header row:

Header	Table name	These constitute the header (structure) of the valid table. The data will be filled-in on the right.
	ID	
	Record size	
	Type	
	Key length	

Step 2. On the right fill-in all authorized employee numbers.

Step 3. On the bottom the user can allocate permitted terminals to each employee.

Note: *The Valid table ID* **SHOULD NOT** *be identical to the Employee table ID.*

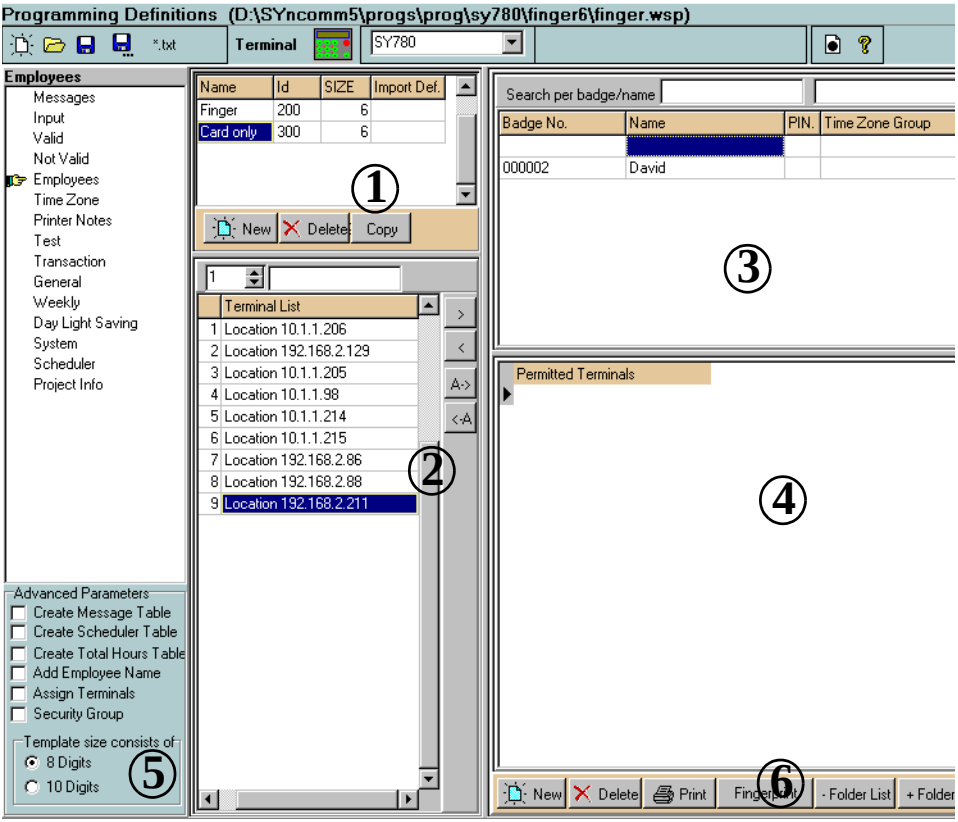
6.3.4 Not Valid

Parameters identical to those of the valid table but used for denying access to specified employee cards.

6.3.5 Employees

Here you can assign an employee list/employee to a terminal. More than one authorized employee table can be imported from an external database

Unlike the “Valid” table, this table includes various employee details as you can learn from the table below:.



1	Employee table header (name). It is possible to import various employee tables from an external text file.
2	The updated terminal list into which updated employee files will be sent.
3	Employee authorized list lay out. Here, employees can also be added manually!
4	A list of the terminals to which authorized employees can be assigned and thus allowed access.
5	Additional features that can be used or disregarded: **Create message table/Create scheduler table/Create total hours table**- these are employee specific messages to be displayed for the eyes of that employee only! **Add employee name/Assign Terminals/Security group** - these are fields that can be either used or not this screen.
6	A series of editing buttons and a few functional buttons as follows: **Fingerprint** - Enables fingerprint management: enrolling a fingerprint, determining the threshold etc. For further information refer to "Fingerprint" on page -73. **Time Zone Groups** - Defines a time-frame in which access is permitted. Time Zones are defined day types for a period of one year.

The **Employees** screen enables performing the following procedures:

- Assign an employee to the specified terminals.
- Sending the requested template to a terminal.
- Use host computer to perform enrolment per employee.
- Determine employee's fingerprint security threshold.

Selecting employee permissions per terminal/group

Step 1. Specify a table name from the **Table name** field.

Step 2. Employee records are displayed in a table format.

Step 3. You can either mark the **Assign Terminals** check box to assign employees manually to a terminal/s, or the **Security Group** check box to assign employees according to a security group.

Step 4. If you use the **Assign Terminals** option, you must now add a terminal to the **Permitted terminals** for a specified employee. Mark one or more terminal/s on the **Terminals** list and use arrow to move it to the permitted terminals list.

Step 5. Employee access through that terminal will be permitted/denied.

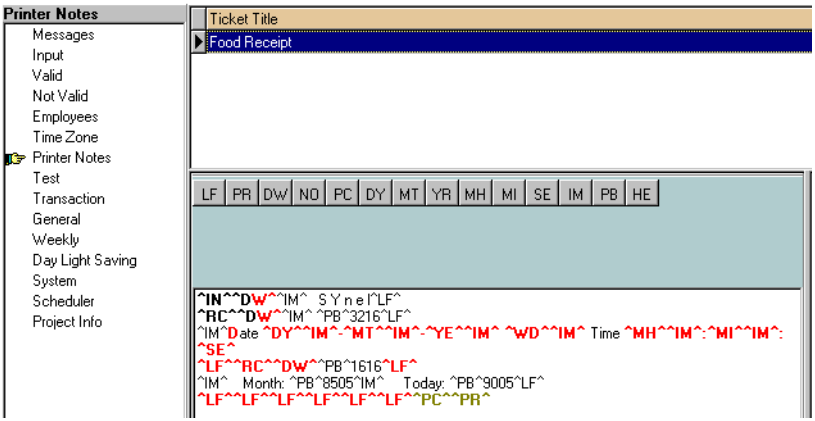
Select All	Select all terminals from list, a check sign marks the selected terminal.
Clear All	Clear all terminals, a circle marks the unselected terminal.
Properties	**ON/OFF** option defines communication software properties.

FPU management

Enables enrolling employee fingerprint (using PRintX/H which is a device connected to your PC's COMM port) and setting-up fingerprint security threshold per template. For further information refer to "Fingerprint" on page -73.

6.3.6 Printer Notes

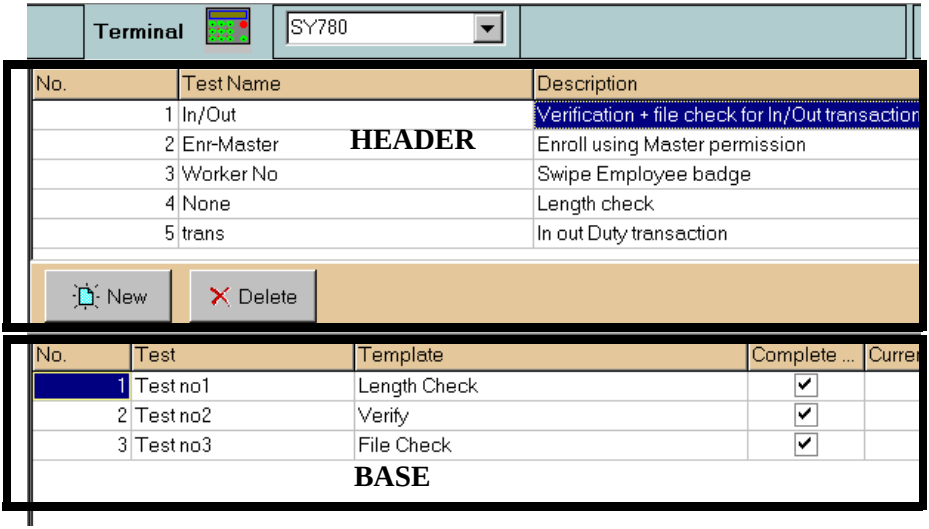
This feature is used for printing labels (For example.: meals). First you must go to **Set-up** | **Program Configuration** | **Printer** and define the printer type you are using in your organization. There are several predefined default printer definitions. If none match your specific printer brand, you should define printer parameters. To do that refer to "Printer" on page -44.



6.3.7 Test

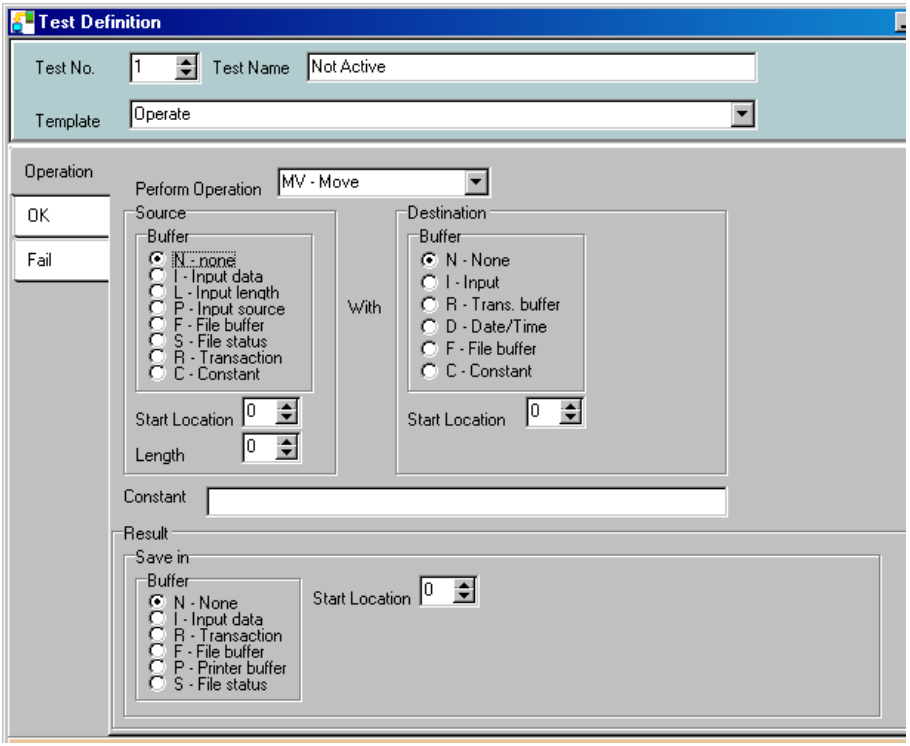
This is a mini set-up table for activities and terms to be performed on the transactions. It is possible to perform one activity or a sequence of several activities. Some of the relatively simple activities are: saving transactions, employee access/other validation, displaying specific timed messages. Some of the more complex activities are: calculation activities (sum, subtract, multiply, compare etc.), variable to variable, inter-buffer activities.

The **Test** table is divided into 2 parts:



The header is the test name, it is recommended that the given name will portray the purpose of the test, see above screen. A new header can be created by either clicking the **New** button or the ⬇ key.

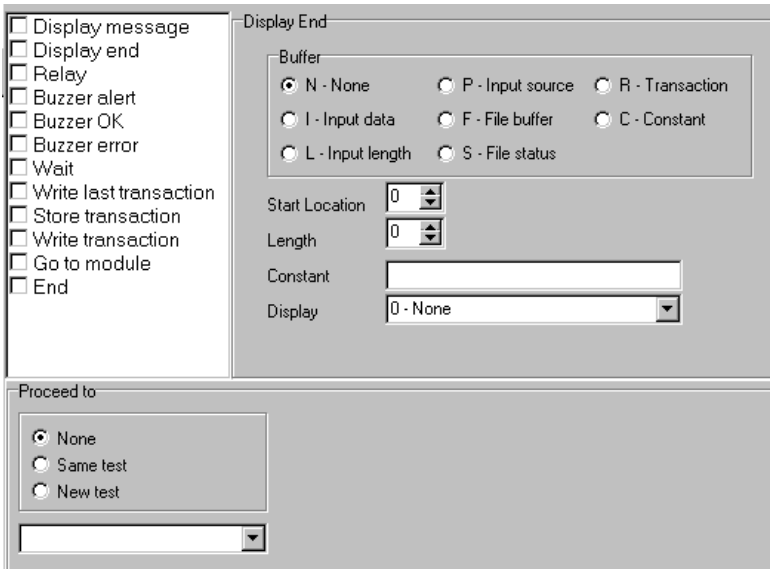
The base part is where actual definitions are set, when double clicking a row the following screen appear:



Step 1. Fill-in a test name and number.

Step 2. The templates are comprised of different activities:
Most templates are divided into 3 parts:
Operation- A check to be performed, different from template to template.
OK- Further to the operation how to confirm or what other activities will follow. Similar for most templates.
Fail- Further to the operation how to indicate that the operation has failed. Similar for most templates.

The **OK/Fail** sections screens are displayed below:



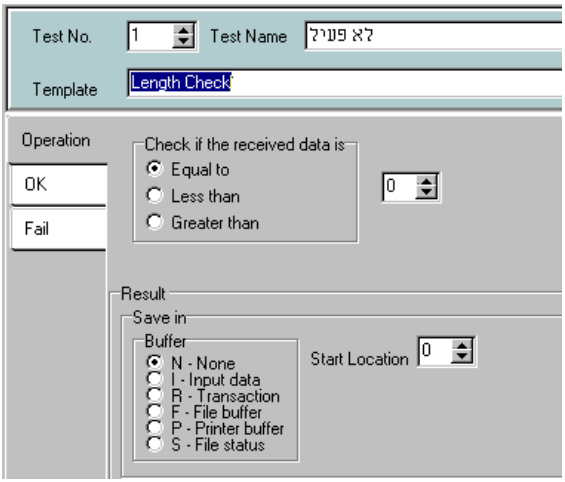
Display message	Enables choosing a constant message from the system messages list.
Display end	Enables displaying variables of input data.
Relay	Enables activating a relay.
Buzzer alert	Enables activating an alert buzzer.
Buzzer OK	Enables activating an OK buzzer.
Buzzer error	Enables activating an error buzzer.
Wait	Waiting time between transactions.
Write last transaction	Transmits data that was stored in a designated directory, to be displayed a later stage.
Store transaction	Determine what data will be stored.
Write transaction	Transmits data that was stored to the terminal's memory. Cannot be displayed.
Go to module	Enables a cyclic flow to the same transaction.
End	The terminal reverts to the defined default function.

Buffers: What data will be displayed on the terminal's prompt:

N - None	No check will be performed.
I - Input data	The last value that was received by the terminal.
L - Input length	The Number of designated spaces for counting total value length.
P - Input source	From which source the last input has arrived, upto four spaces: 1st=type, 2nd+3rd=reader number, 4th=status.
F - File buffer	The results of a table search (either employee or valid)= the last record (approx. 30 spaces).
S - File status	The status after performing the last command.
R - Transaction	Before storing the transaction it can be compared.
C - Constant	Free text to be filled in Constant field below.

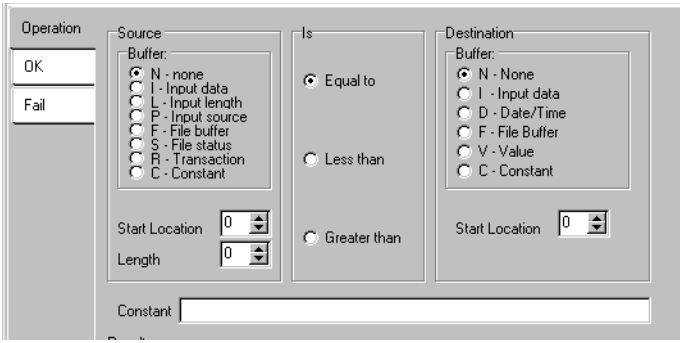
Below please find an outline of defining Operation for templates:

Length check

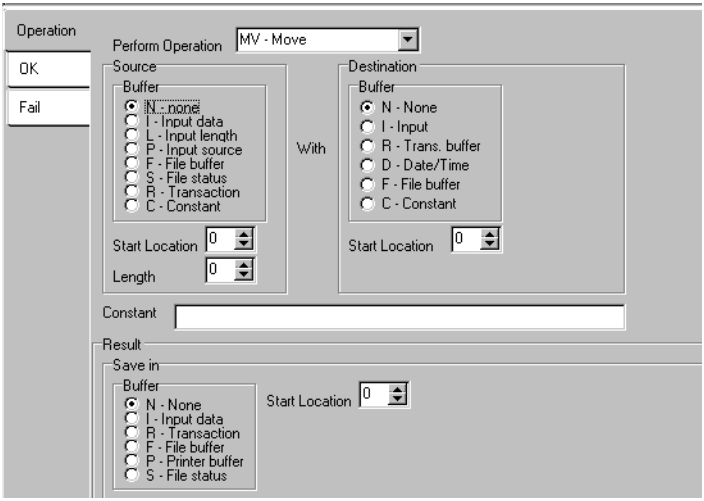


Defines the input length limitation (KB, card number, identification ID etc.) and the offset of that input number.

Check value Enables comparing field variables.

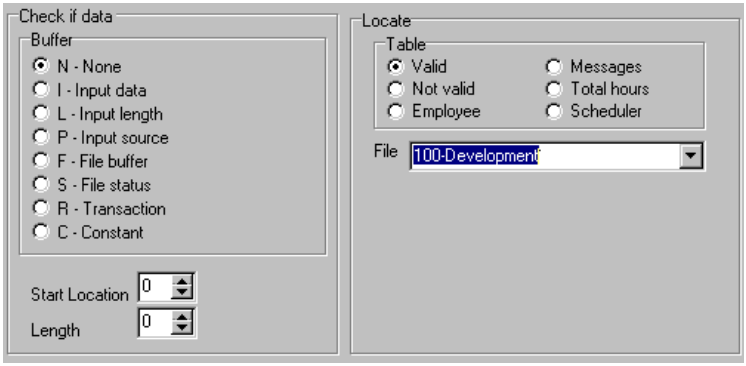


Operate Enables performing various calculations between buffers.
i.e.: This feature is useful when printing, for placing variables in the printer buffer:
AD= summary, SU= subtract, MV= Move, AN=Pairing bytes logically, OR= alternating 2 bytes logically, XR=Exclusive XOR operator, NU=numeric check



Source check Enables checking:
Primary source is the input source: what reader is operated.
According to this the software will apply accordingly.
The reader number is a secondary source.
Reader Status code is unique for each output type as follows:
Readers- E= read error, D=data read OK
Keypad- N=numeric or Enter key (If only Enter then IL=0)
Sensors- A= Active, P= Passive Note: IL=0
Printer- A= Active, P= Passive

File check Enables validating an authorized list with one of the tables on the Locate section. Under **File** choose the specific file.



Query A query is sent to the software that is performing an online scan - using SYServer.

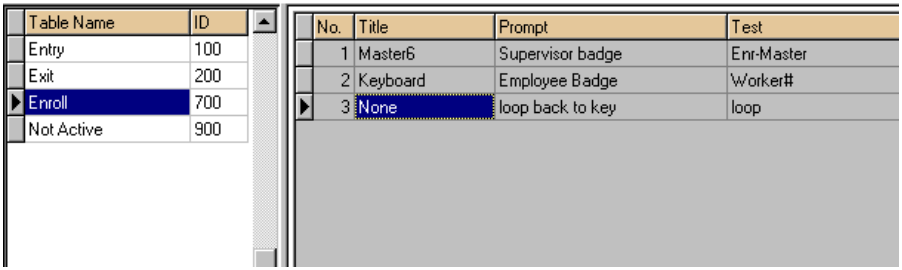
Write last transaction Enables saving the last transaction setup in a temporary file for later display as t he employee's last transaction.

Store transaction Enables adding transaction data to a buffer.

Write transaction Enables saving all transaction steps (see **Transaction** folder) in the terminal's memory. Later this data can be collected by the host.

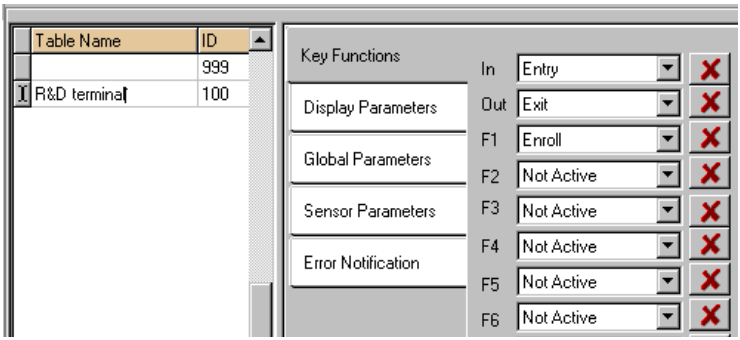
6.3.8 Transaction

In this screen the user can define a multi-step transaction, combining **Test**, **Input** and prompt message definitions. The screen shot below demonstrates the enrolment procedure that requires a supervisor card to be swiped first.



6.3.9 General

Combines the transaction definitions with a function key on the terminal's panel.



Define all hardware parameters:

Key function- Determine function allocation to terminal keys.

Display parameters- What error message will be displayed on the prompt. Also you must choose a date/time format as per the terminal you are using as follows:

DD/MM MM/DD HH:mm HH:mm a/p DD/MM HH:mm MM/DD HH:mm DD/MM, a/p HH:mm MM/DD, a/p HH:mm	711/715	777/780

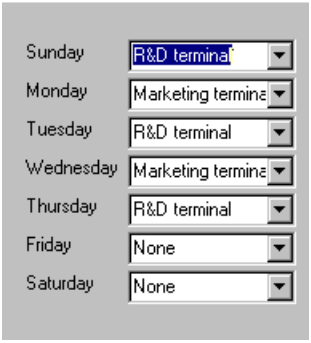
Global parameters- Timing of terminal activities.

Sensor parameters- sensor operational parameter.

Error notification- Setting-up error indicators.

6.3.10 Weekly

Combines General definitions of the terminal function keys with a day of the week. Thus, the terminal can be used differently for each day.



Appendix A: Maintenance

This menu which is located on the top of your SYncomm screen, allows you to easily implement systematic communication reparation procedures such as:

1. Back-up

Enables backing-up system and utility files to a predefined location. Data files can be backed-up on a regular basis as per a predefined recurrence.

2. Restore

Enables retrieving system/utility and data files from backup. In SYncomm restoring can be done per terminal and for a specified date range. Also other activities can be performed on the restored files using SYncomm utilities.

3. Advanced

3.1 Re-index

Enables rearranging table indexing if previous indexing was distorted.

3.2 Build indexes

Enables refreshing program tables index.

3.3 Return All Program Settings to Default

Enables the user to revert to the initial system Set-up definitions. For further information see “Set-up” on page -31.

3.4 Upgrading firmware - SY780 terminals

Caution: *The new firmware will override the old firmware.*
Make sure you collect data from the terminal before upgrading!

Upgrading firmware can be implemented as follows:

- As of version 6.204 for all the 6.xx series versions.
- As of version 7.204 for all the 7.xx series versions.
- As of version 8.0 for all the 8.xx series versions.

This option is limited only to authorized personnel (usage of a password)!
EPROM upgrades can be sent from SYncomm to the terminal as follows:

Note: *The new firmware will override the old firmware!!*

Step 1. Click the **Activities** icon. Under the **Maintenance** menu go to **Advanced| Upgrading firmware**.
Step 2. Choose the relevant upgrading firmware file.
Step 3. Choose the terminal to be upgraded.
Step 4. Confirm sending programming to the terminal.

3.5 Formatting memory

This option is limited only to authorized personnel (usage of a password)!
SYncomm can erase all transactions from the terminal's memory as follows:

Note: *Perform collect data before starting this operation.*

Step 1. Click the **Activities** icon.
Step 2. Under the **Maintenance** menu go to **Advanced| Formatting Memory**.
Step 3. Choose the terminal/s to be formatted (the default is none).
Step 4. Define whether SYncomm should sent programming to the terminal.

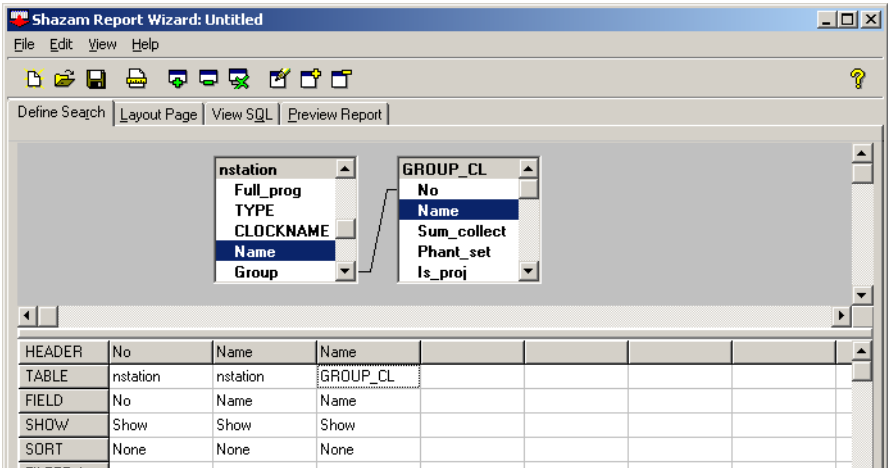
3.6 View SYncomm database

Enables viewing SYncomm's database.

3.7 Report Builder

Enables submitting various SQL queries via SYncomm to retrieve accumulating data. To insert a table click the **Add Table** button. A sub-screen will enable you to browse your data base. Related tables can be

connected, see screen below:



3.8 Create translation files

SYncomm's interface can be translated into any target language. For creating a translation file go to: **Set-up**| **Global**| **Def. Location** you must define the location of the INI language files to be translated. These will be saved under: x:\SYncomm\Language. Then under **Maintenance** click **Create translation files**.

4. Utilities

External programs that perform a specific task/service, usually related to managing system resources.

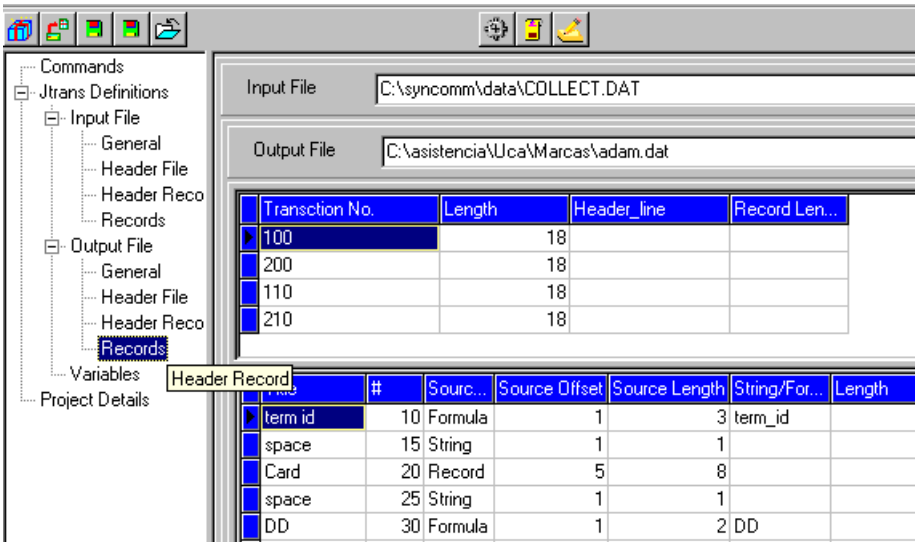
4.1 WinJTrans

WinJTrans is a tool for building freely a conversion project comprised of different formulas. It is usually used for converting for example: collected data files into a target format as per the user's requirements, such as:

String from terminal: d0006132260603B2021659000000000000034

Converted into: 00 000034 260603 16590J

Below is an example of such a conversion screen:



For further information you must refer to our technical support department.

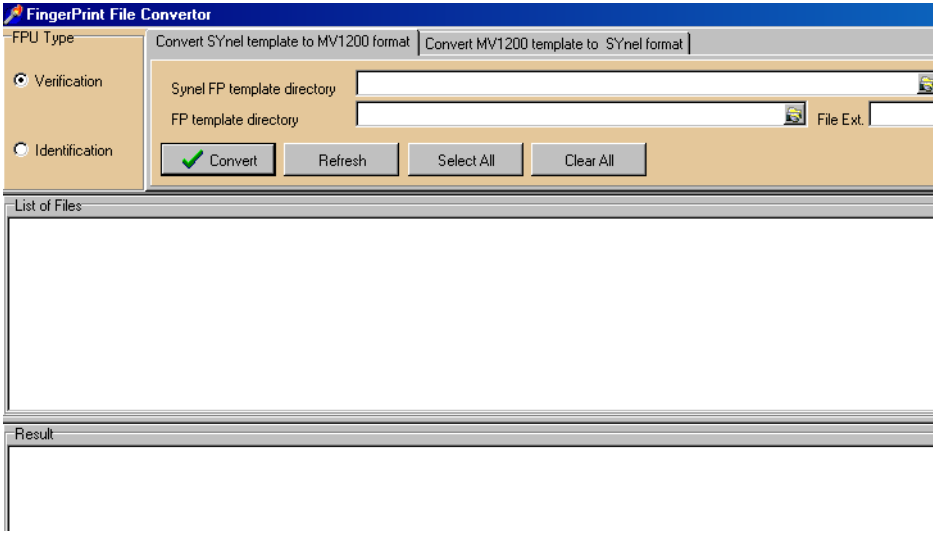
4.2 Check RDY

Checks the format (RDY) of the data files sent to the terminal from the software. When creating new RDY files you can check their legality using this tool. For further information on Synel's RDY format files refer to "Appendix B: SY7xx/SY4xx-RDY Format" on page -81.

4.3 Convert Templates

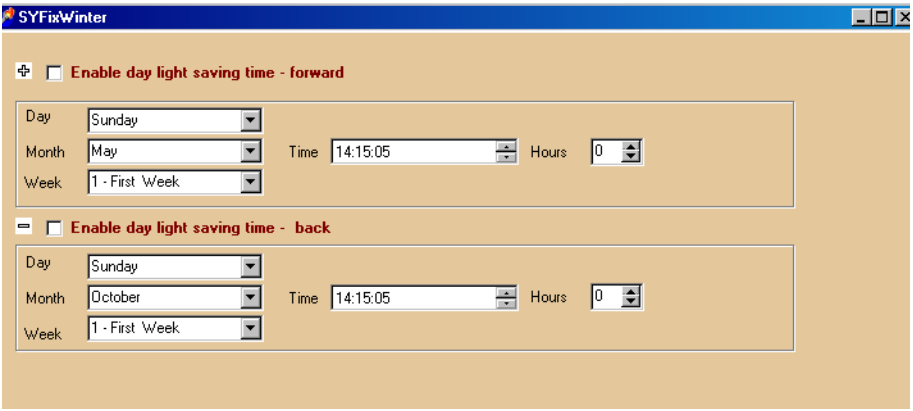
Enables converting Synel fingerprint templates format into BII fingerprint template format.

This utility enables converting templates that were stored in an MV1200 unit to Synel format; The templates are received directly from your FP unit using an MV1200 demo software, converted into Synel format and sent to Synel terminals using Synel software. This a reciprocal process: templates can be converted also from Synel format into MV1200 format.



4.4 Update Day Light Saving Time

Enables setting-up daylight saving time usually in correspondence with seasons (maximizing daytime usage in Winter- shorter daytime and longer daytime in Summer). With exceptions for specific projects, for further information “SY-780/A Programming” on page -50 and “Edit Program Configuration” on page -34.


SYFixWinter
Enable day light saving time - forward
Day
Sunday
Month
May
Time
14:15:05
Hours
0
Week
1 - First Week
Enable day light saving time - back
Day
Sunday
Month
October
Time
14:15:05
Hours
0
Week
1 - First Week

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Chapter 4 - Fingerprint

The fingerprint feature is available from *SYncomm 4.4 and later versions,* with SY-780 terminals and PRintX (via PC).

Note: *All firmwares support verification for a 6 digit ID. A 7-8 digit ID is supported by 5.115, 6.101 and later versions. A 9-10 digit ID and identification are supported as of firmware version 6.200. The FPU-S unit is supported as of version 8.003.*

Unit Types:

Identification

does not require a card/code. Upto 200 fingerprint templates are stored in the terminal's memory. Whenever an employee places his finger on the sensor, the Fingerprint (FP) unit polls all existing templates until there is a match and confirms/rejects.

Verification

requires a card/code. The template is stored in reference to a card/code. Upto 4000 (FPU-S= 1000) card/codes and templates are stored. When an employee swipes his card/keys-in his code, the unit checks if the card/code number exists, if it does it checks also the template assigned to that number.

The differences between fingerprint identification and verification are:

- Identification does not require a card/code. Upto 200 fingerprint templates are stored in the terminal's memory. Whenever an employee places his finger on the sensor, the unit polls all existing templates until there is a match and confirms/rejects.
- Verification requires a card/code. The template is stored in reference to a card/code. Upto 4000 card/codes and templates are stored. When an employee swipes his card/keys-in his code, the unit checks if the ID number exists, if it does it checks also the template assigned to that number.

	MV1200 Method	**FPU-S Method**
Verification	4000	1000
Identification	200	1000

Card number can be either 8 (verification only) or 10 characters (verification

and identification).

The basic biometric concepts are:

Enrolment

Scanning a fingerprint, determining quality of the scan and storing a good template as a reference. Enrolment is confirmed and scanning quality data is outlined. Scanning quality is a by-product of the skin's condition: dry skin can contribute to an unreliable image. A normal amount of moisture on the skin makes the ridges and valleys of the fingerprint stand out to the sensor. Too little moisture makes the image "noisy" and causes PRintX/H to reject the image during processing. Lightly moisturizing the finger will enhance the contrast of the print and provide a more reliable template. An increased sensitivity of the silicon sensor can dramatically reduce such problems.

Verification

Proofing of the current scanned fingerprint against the stored fingerprint templates for that user:

Quality

The quality score is based on how well the ridge pattern is defined within the fingerprint image that was enrolled. Quality measures how clearly the unit imaged the fingerprint. Poor quality enrolment can result in an elevated rate of false rejection making it difficult for the user to verify reliably. The score ranges from 0 to 100. A 100 is the best quality (rarely obtained) and 0 the worst. Quality scores of 40 and higher perform well with the verification algorithm that readily compensates for differences in fingerprint.

Content

The Content score is based on the amount of usable information the unit sees in the fingerprint. Templates that are characterized by low content scores may result in elevated rates of false acceptance.

The score ranges from 0 to 100. A 100 is the most content and 0 the least.

Content scores of 20 and higher perform well with the PRintX/H. In this range the algorithm has enough information to distinguish between different fingerprints with a high level of accuracy. Templates with content scores above 20 do not vary in terms of the error rates.

Hardware

First, the following devices may be connected:

1. A PRintX/H fingerprint unit must be linked to the PC via the COM port.
2. PRintX-I/V (identification or verification or FPU-S) fingerprint unit linked to the SY-400/A terminal.
3. SY-780/A has a built-in FP unit.

Caution: *Use an external power supply for the PRintX/H fingerprint unit!*

Software

After you have connected the PRintX unit to your PC COM port, you must go to **Set-up** | **Fingerprint** and define:

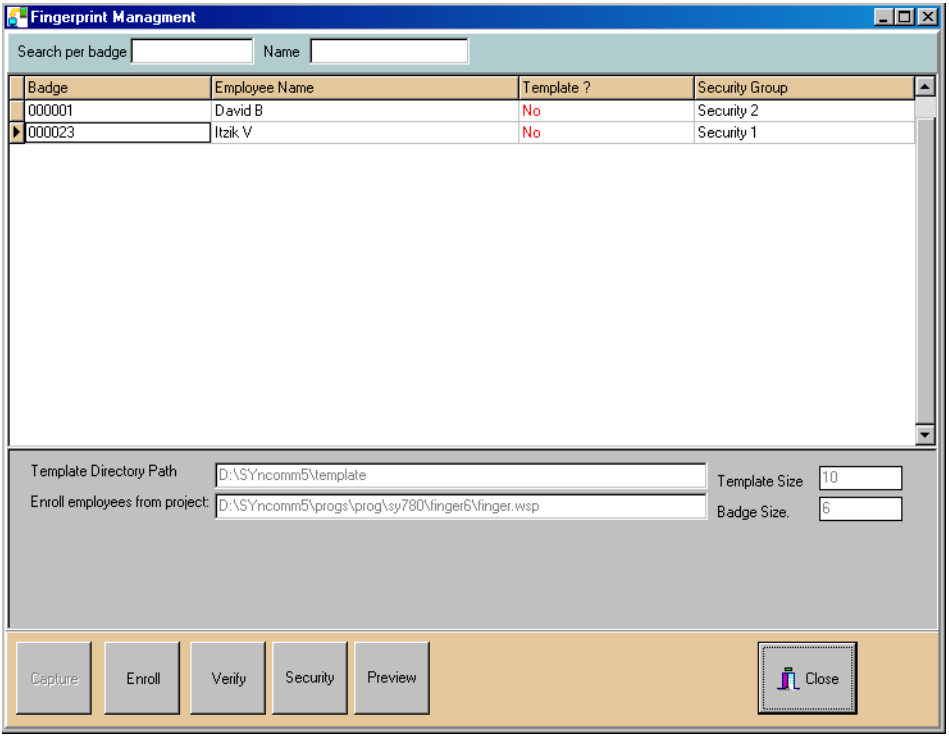
- A path in which your templates will be stored.
- The COM port used by the PRintX fingerprint sampling unit.
- A fixed baud rate: 57600.
- Do not change the Net ID!

Also, Define a default project under **Setup** | **Default definitions** | **Default project**.

You can access the **Fingerprint Management** screen either from:
Activities | **Template Mang.** or from:
Edit Program (choose SY780) **Employees** | **Fingerprint**

Then, you can use PRintX/H for enrolling templates to SYncomm (to the path that was specified under **Set-up**).

The screen below enables using the PRintX for enrolment of employee fingerprints.



PC enrolment allows one (or two in verification FPU only) template/s per employee (according to fingerprint set-up definition).

Step 1. Press the **Enrol** button to sample your fingerprint. Place the finger on the designated place on your PRintX device.

Note: *Make sure that before enrolling you define the same PRintX type you have in SYncomm (Verification/Identification/FPU-S Verification/FPU-S Identification).*

Step 2. Place your finger on the device. A **Remove finger** message appears and a green led is lit.

Step 3. A fingerprint scan score is displayed (See quality, content at the beginning of this chapter).

Step 4. In case the user wants to re-scan he must click **No** and revert to the **Fingerprint** screen.

Step 5. If the user wants to confirm, he clicks **OK**. A "**Template saved to disk**" message appears.

Step 6. the writing under the **Template?** column for that employee will read **Yes**.

Step 7. Repeat steps 1-6 for each template (there could be up to 2 templates per employee).

Step 8. Click **Verify** and a "Verified"/"Verification failed" message will appear.

Step 9. Under **Activities**, click **Send All Templates**, to send the new templates to the terminal.

Step 10. If sampling becomes problematic, change the **Security** threshold score requirements, i.e. from **Very high** change to **Low**.

The enrolment procedure can be repeated upto three times. A failure in all attempts will result in reducing the threshold value for that specific employee.

In a successful sampling a template file will be created. A file is saved under the host computer default path, its name includes 8 digits as per employee number and an FG1 suffix.

Setting FPU parameters

Press **Set FPU Parameters** button from **Activities** screen on SYncomm main menu, a submenu appears. Click a radio button **Option** to select global threshold settings, listed in ascending mode from the highest security level to the lowest. The last two radio button sets update initiating mode, master or slave.

For further information on the FPU

Personal Security threshold (level)

The compatibility level between scanned fingerprint and the reference template is defined as the threshold. The security level, which is specified per each employee, is changeable when a low scoring of fingerprint sampling occurs. During verification procedure, FPU uses the lowest security level defined in the global threshold against personal threshold stored within the template. The following procedures enable changing an employee's personal threshold.

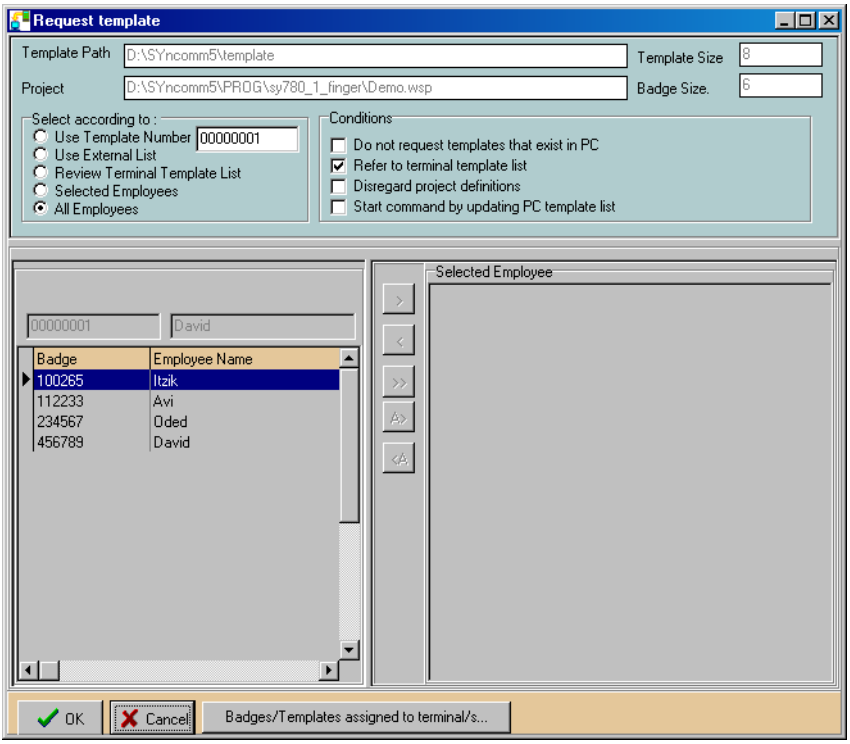
Changing employee threshold

Select an employee from table. Click the **Security** button on the lower tool bar. Change employee threshold submenu appears:

- **Current** displays employee security level.
- **New** enables customizing employee security level.

Acknowledge modification by clicking **Change** button or disregard it by clicking **Cancel**.

Requesting/Sending/Delete template/s (buttons)



Choose the relevant terminal, then request/send/delete templates from that terminal according to the following parameters (note: you can perform this activity for one employee table at a time):

Select according to:

Use Template Number	Insert a template number manually. This command ignores employee list and requests a specific template number.
Use External List	Import an authorized employee ASCII file. Under **Setup** | **Fingerprint** | **Request/Send/ Delete Template...**

Review Terminal Template List	Before performing the activity review terminal template list and act according to the defined condition.
Selected Employees	Send employees that were moved to the Selected Employees area (see above screen).
All Employees	Send all employees and act according to the defined condition.

Conditions:

Do not request templates that exist in PC	To save time and resources, only new templates can be requested.
Refer to terminal template list	Before performing this command check terminal template list.
Disregard project definitions	Perform an activity although it does not coincide with project definitions (template allocation).
Start command by updating PC template list	Before performing this command synchronize PC and terminal template lists.

You can define here a path for storing the templates different from the default path defined under **Setup** | **Fingerprint**.

Project- Defined under **Setup** | **Default Definitions | Default Project**

Badges/Templates assigned to terminal/s- A view of the templates stored in the terminal's memory.

Appendix B: SY7xx/SY4xx-RDY Format

1. General

Synel's terminal has a special format for internal tables (files). The table contains a header that determines its general information and structure, and data records. The table can be divided into two groups: Tables that are handled directly by the firmware and user defined tables. The first group – System tables has a pre-defined structure that cannot be changed by the user or the application. The user uses the SAL application to adjust the tables to his requirements.

This document will describe the general structure of the tables and the structure of system tables.

Special characters:

Character	Limitation
> 7F	A character greater than 7F hex can not be sent to the terminal.
EOT	04 hex – End of Transmission
ACK	06 hex - Acknowledge
CR	OD hex will be ignored – not sent to the terminal
LF	OA hex will be ignored – not sent to the terminal
__	5F hex will be ignored – not sent to the terminal
A string beginning with f1 (01 hex) will be considered as a comment and will not be sent to the terminal.	

2. Header structure

Each table has a header. The header is a 23 bytes string divided into the following fields:

2.1 Table A – Header structure

Byte	Length	Value	Type	Explanation
1	1	A-z	A&N	Table type – Used as part of file identification
2	3	001-999	N	Table ID – for file identification
5	5	00023-99999	N	Total table characters
10	1	0-z	A&N	Table version
11	2	23	N	Header Size
13	2	00-99	N	Record size - total number of characters in a record
15	3	000-|99	SN	Number of records in table
18	2	00-99	N	Key length
20	2	00	N	Key offset (a fixed value - not in use).
22	2	00-03	N	00 – Not sorted, not packed 01 – Not sorted, packed (Only in numeric records!) 02 – Sorted, not packed 03 – Sorted, packed

A&N- Numbers and characters are allowed in this field.

N- Numeric field

SN- Special Numeric field. This format is used in order to increase the value range in a numeric field without increasing the size of the field for compatibility. The algorithm is simple, there is no change in the least significant bytes of the number, and only the most significant byte of the number is changed to a character according to the following algorithm: 10 is represented by ":", 11 ";" etc. according to the standard ASCII table. For example: If the records total in a table is 2049, then it will be converted to D49. (See "Algorithm for Synel's numeric fields" on page -96).

In a sorted table the records are in incremental order as per the defined field key. The sorted table search is a binary search, therefore there must not be a duplicate of the same record with the same key. In such cases add a digit to the key to make it unique.

A pack table must consist of numeric characters only. Compression is simple, the terminal will store 2 digits in one byte by converting ASCII into BCD. The compression ratio is 1:2. There will be no data record merging. In odd record length the last nibble will be empty.

3. System tables

System tables are handled directly by the firmware. The structure of the table is constant and cannot be changed, however the number of records is not constant. There are 5 System tables: Task Scheduler Table (FTS), Messages table (MPL), System Parameters Table (SYS) and Program tables like JPL, JPR, TRS/TRP Font translation table files (FNT).

3.1 Table B- Header of system tables

Field	**FNT**	**FTS**	**SYS**	**MPL**	**JPL**	**JPR**	**TRS***	**TRP***
Table type	g	e	p	d	j	v	m	m
Table ID	001	001	001	995	001	001	001	001
Total number of characters in table**	-----	-----	-----	-----	-----	-----	-----	-----
Version of table	A	A	A	A	A	A	A	A
Header Size	23	23	23	23	23	23	23	23
Record size	16	23		68	16	---	04	06
Number of records in table***					---	---	---	---
The key length	01	04	00	04	04	00	00	02
Key offset (a fixed value-N.A).	00	00	00	00	00	00	00	00
Table attributes:	02	02	00	02	02	00	02	02

* Either TRS or TRP files will be sent.

** A 5 digit numeric field

*** A 3 special numeric field: 1^{st} =ASCII, 2^{nd}+3^{rd}=numeric (see Appendix A)

Task Scheduler table

This table is used by the firmware to perform automatic operations per a specific day and time. There are 3 types of operations: Changing the active function, activating the relay (for bell purposes or door control) and setting the modem to auto-answer.

Task Scheduler record format

The record is 23 bytes long. The data field is modified according to the operation code. See the record format in the page below:

Byte	Length	Value	Type	Explanation
1	4	0000-2359	Time	Event time in military format
5	15		A&N	Data depends on the operation type
20	2	00	N	Currently not in use
22	1	K, O, M	A&N	Device type K- Key function, O-Output, M-Modem
23	1	0-7	N	Day of week, 0- all week, 1- Sunday, 7- Saturday

Data field structure for function key operation:

Each function can have the following operation modes:

A Active: The function can be activated by pressing the function key

P Passive: The function is disabled in the defined interval.

D Default: The terminal will return to this function.

Each byte in this field represents a function key that can be an actual or a virtual key. The 1st byte is dedicated to the IN function, the 2nd to OUT, etc. In cases of more than one default key, after using non-default keys (as per user's requirements) the firmware will revert to the first key defined as default.

Byte	Length	Value	Type	Explanation
1	4	0000-2359	Time	Event time in military format
5	15	A, D, P	A&N	A- Active, D- Default, P –Passive
20	2	00	N	Not in use
22	1	K	A&N	K- Key function
23	1	0-7	N	Day of week, 0- all week, 1- Sunday, 7- Saturday

For Example:

Switch automatically to the OUT key during the whole week at 17:15 and keep the IN key active.

1715ADPPPPPPPPPPPPP00**K0**

Data field structure for Output operations:

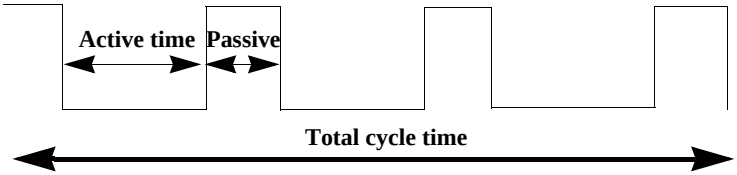
Each relay can be activated at a specific time. The relay can control the bell, door, turnstile or any other device. It has 3 operation modes:

S- Set (activate), open permanently.

R- Reset (passive), close permanently.

P- Pulse, activate for a period.

Byte	Length	Value	Type	Explanation
1	4	0000-2359	Time	Event time in military format
5	1	S, R, P	A&N	Operation type
6	2	01-02	N	Relay number
8	3	000-999	N	Active time in cycle, in units of 200 msec.
11	3	000-999	N	Passive time in cycle, in units of 200 msec.
14	3	000-999	N	Total cycle time, in units of 200 msec.
17	3	000	N	Not in use
20	2	00	N	Not in use
22	1	O	A&N	O-Output
23	1	0-7	N	Day of week, 0- all week, 1- Sunday, 7- Saturday



For Example: 1405**R01**000000000000000**O5**
For Example: 1405**S01**000000000000000**O5**
For Example: 1405**P012003005000**0000**O5**

Data field structure for Modem operations:

Currently, two commands are available:

1. Set into Auto-Answer
2. Send any AT Command

Auto answer - data field structure

Byte	Length	Value	Type	Explanation
1	4	0000-2359	Time	Event time in military format
5	1	A	A&N	Auto answer
6	1	0-9, N	A&N	Number of rings, N- Disables auto answer function.
7	13	0000000	N	Currently not in use
20	2	00	N	Not in Use
22	1	M	A&N	M-Modem
23	1	0-7	N	Day of week, 0- all week, 1- Sunday, 7- Saturday

AT commands - data field structure

Byte	Length	Value	Type	Explanation
5	1	I	A&N	Instructions (AT commands)
6	14		A&N	String to send

3.2 System parameters table record format

The system parameters table has only one record. This record is a string of parameter numbers and their values. Each parameter has a default value which is used when it is not defined. Each number starts with a "^" sign and is followed by a 3 digit number. The table below explains the existing parameters:

Param. no.	Description	Value	Default
^000	Technician card length		6
^001	Tech. card authorization	D- Only Synel's technician card (000000) is authorized P- Only the value that is defined in parameter #2 is authorized B – Both values are valid S – Both values are valid and can set the time from the technician mode menu ver. 4.10 and upwards	B
^002	Tech. card number	Number length identical to parameter #0 length	000000
^003	Badge reading error notification	Y- Yes N- No	Y
^004	Shut-off time (sec.)	00-98 –The terminal will be turned off when it is working on its back-up battery and is not active for longer than the defined value. 99- Keeps the terminal ON continuously.	15
^005	Day light saving time	See "Day light saving time parameter structure" below.	Disabled
^006	Return to default function (sec.)	00-99, When a function key is pressed but not used.	50
^007	Memory alarm	000-999, turns ON an alarm LED whenever there is a memory overflow.	075
^008	Online_tmo	Online to offline time out (sec.)	15
^009	Activate function led	Y- The LED is controlled by the firmware N- The LED is controlled by SAL	Y

Param. no.	Description	Value	Default
^010	Memory overwrite	Y- Clears data that is temporarily acknowledged by the host (Op-code F) when memory is full. N- Clears commands from the host only (Op-code C,c)	N
^011	Date format	0- DDMMYY 1-YYMMDD 2- DDMMYYYY 3- YYYYMMDD	0
^012	nnnn	User defined code to be displayed	
^013	nn	Polling interval -- =Possible to change in Master mode value= Impossible changed in Master mode	--
^^	Sign for ending of parameters		

Record length is the total number of characters in all defined parameters (includes the parameter number and the ending of parameter sign "^^"). Make sure you define the constant value for default parameters.

3.3 Day Light Saving Time parameter structure

Setting the daylight savings time control

SY7xx terminals can be programmed to automatically move the clock forward or backward at given dates. The daylight saving time fields define when to move the SY7xx terminal's clock forward by one hour (Spring) and backward by one hour (Fall). This feature is optional. There are two methods of defining whether the clock will be moved: at a specified date (method 1) or using a fixed algorithm (method 2). This parameter can include more than one definition, each definition is a 13 bytes length string regardless of the method used, but the structure is different.

Method 1 – Specific date

The clock will be moved per a specified date (DD/MM/YY):

Byte	Length	Value	Type	Explanation
1	1	1	N	Method type - 1
2	2	01-31	N	DD - day
4	2	01-12	N	MM - Month
6	2	01-99	N	YY - Year
8	2	00-23	N	HH – Hour (military format)
10	2	00-59	N	mm- Minutes
12	1	+, -	A&N	Forward (+), Backward (-)
13	1	0-9	N	Amount of change

Method 2 – Fixed algorithm

The clock will be moved on the day of the week on a specified week of a specific month:

Byte	Length	Value	Type	Explanation
1	1	2	N	Method type - 2
2	2	01-31	N	MM - Month
4	1	0	N	Constant
5	1	0-6	N	Day of week, from **0** = Sunday to **6** = Saturday
6	1	0	N	Constant
7	1	0-6	N	Week of month, from **1** for the 1st week to **L** for the last week
8	2	00-23	N	HH – Hour (military format)
10	2	00-59	N	mm- Minutes
12	1	+, -	A&N	Forward (+), Backward (-)
13	1	0-9	N	Amount of change

Sample setting using method 2

In the example below, when the terminal switches from 23:59 on the 1st Saturday of April to 00:00, it's internal clock automatically skips to 1:00 of the following day. When the terminal switches from 23:59 on the 1st Saturday of October to the next minute, it's internal clock automatically

returns to 23:00 of the same day.

Method: 1 / 2	Day	Month	Year	0	Day of week	0	Week of month	Time HH:mm	Change
2	--	04	--	0	6	0	1	23:59	+1
2	--	10	--	0	6	0	1	23:59	-1

TRS record structure

This table enables using special characters that can not be transmitted by the protocol in the display/printer. Before displaying this character it replaces the transmitted code with the required character. There are two TRS table types: for display only, for display+printer. (Display only)

Byte	Length	Value	Type	Explanation
1	2	20-7F	A&N	ASCII code HEX of character to be translated.
3	2	20-FF	A&N	ASCII code HEX of character to display.

TRP record structure

Byte	Length	Value	Type	Explanation
1	2	20-7F	A&N	ASCII code HEX of character to be translated
3	2	20-FF	A&N	ASCII code HEX of character to display
5	2	20-FF	A&N	ASCII code HEX of character to print

Note: *To disable translation either to display or print, you must fill-in the value to be translated (see 1st row in the table above) in the field you do not want to translate.*

FNT record structure

This table enables creating (drawing within a 5x7 matrix) fonts that are not display supported as per the user's specific requirements. You must define a specific designated character to enable this option.

Byte	Length	Value	Type	Explanation
1	1	Char	A&N	Symbol to be replaced
2	1	0	A&N	Type field – reserved for future use.
3	2	00-1F	A&N	Row 1 (hex)
5	2	00-1F	A&N	Row 2 (hex)
7	2	00-1F	A&N	Row 3 (hex)
9	2	00-1F	A&N	Row 4 (hex)
11	2	00-1F	A&N	Row 5 (hex)
13	2	00-1F	A&N	Row 6 (hex)
15	2	00-1F	A&N	Row 7 (hex)

Example- Synel's FNT00110.RDY file – see below:

_Special Char.

g

001
_10
00103
A **---HEADER**
23
16
005
01
00
02

?-	character
0-	type
OE	01110
11	10001
01	00001
02	00010
04	00100
00	00000
04	00100

= **?**

---

^-	character
0-	type
04-	00100
OE	01110
15	10101
04	00100
04	00100
04	00100
04	00100

=

{-	character
0-	type
00-	00000
01	00000
09	00000
1F	00000
08	00000
00	00000
00	11111

=

}-	character
0-	type
00-	00000
00	00000
00	00000
00	00000
00	00000
00	00000
1F	11111

= _____

~-	character
0-	type
04-	00100
04	00100
04	00100
04	00100
15	10101
OE	01110
04	00100

=

---

4. Record structure of MPL

The MPL table is used for displaying messages. The messages can include @-Sequences that enable creating complex formats:

The following list outlines the available printed/displayed message file programming codes, their description and the placeholder position. An action depicts the information printed from a printer, which is connected to the terminal as a result of activating terminal reprogramming.

A message can contain up to 76 characters. 4 characters are the message number place holder and the remaining 72 will be used for the body of the message. In the page below please find common message programming codes:

Display @-Sequences formats

The following lists the available display message file programming codes, description and place-holder. Action depicts the information that is presented on the terminal display as a result of activating terminal reprogramming.

Code	Name	Length	Action
@D	DAY	02	Display the current day
@M	MONTH	02	_____ month two digits format
@Y	YEAR	02	_____ year two digit format
@y	YEAR	04	_____ year four digit format
@H	MILIT.HOUR	02	_____ hour (24) military format
@h	STAND.HOUR	02	_____ hour (12) format
@I	MINUTES	02	_____ minutes
@S	SECONDS	02	_____ seconds
@W	WEEK DAY	02	_____ day of the week Su Mon Tu We Th Fr Sa
@#..	IMMEDIATE		Display the text that follows the sign #
@X	SEQ. END		End of sequence
@P	POSITION		Start position: (rr-row) (cc-column)
@F_(9)	FRAME		Display frame buffer format in with parameter: '-' - source type (J-Jobbing ,K-keyboard) '--' - source offset '--' - frame length
			Attributes: '-' - char attribute: buffer(#)/another '-' - cursor state: on/off (Y/N) '-' - scroll left: on/off (Y/N) '-' - reserve
@T--	TEMPORARY		Display temporary message -- (measured in 1/5 Seconds)
@t--			- . - . - . - -- (Sec.) (From beginning of sequence)
@A	ALTERNATE		Beginning of alternate sequences

Code	Name	Length	Action
	begin		(Permit only once in @_sequence.)
@(	SEG.ALTER		Beginning of alternates sequences
	begin		
@)--	SEG.ALTER		End of alternate sequence block
	end		'--' (1/5sec)- Display time of alternate
@[	ALTERNATE		Used with @A: (@A@[@(@…@)- -@(@...@)@])
	begin		
@]	ALTERNATE		End of alternates sequence
	end		
|- -	BLINK		Blink for previous sequence block. first "-"-active time second"-"-passive

5. Printer @-Sequences formats

Code	Name	Length	Action
?	Begin		Beginning of all printer data-strings
@D	DAY	02	Display the current day
@M	MONTH	02	_____month two digits
@Y	YEAR	02	_____year two digits
@y	YEAR	04	_____year four digits
@H	MILIT.HOUR	02	_____24 hour military format
@h	STAND.HOUR	02	_____12 hour format
@I	MINUTES	02	_____minutes
@S	SECONDS	02	_____seconds
@W	WEEKDAY	02	_____day of the week: Su Mo Tu We Th Fr Sa
@#.....	IMMEDIATE		Print the text that follows the sign # To next @- sequence
@*nn	Hexadecimal	01	'nn'-one byte in hexadecimal coding To next @- sequence
@FPooll	FRAME		Print buffer in frame with parameters: 'oo' - source offset 'll' - frame length

Code	Name	Length	Action
@X	SEQ.END		End of String
@?	Report End		End of Print Report

6. Algorithm for Synel's numeric fields

Multi-drop ID algorithm

If multi-drop ID is < '@' & > '0' then
Multi-drop ID = - 30 Hex

If multi-drop ID is > '@' then
Multi-drop ID = - 31 Hex

HighByte + LowByte algorithm

If HighByte is > '9' then
Length is (HighByte - 48 dec.)x 10 dec. + LowByte x 1

HighByte + MiddleByte + LowByte algorithm*

If HighByte is > '9' then
Length is (HighByte - 48 dec.) x 100 dec. + MiddleByte x 10 + LowByte x 1

* Refers to the total of records number, see table in the page below:

No. of records	Actual no. in table
1-9nn	1-999
10nn	:nn
11nn	;nn
12nn	<nn
13nn	=nn
14nn	>nn
15nn	?nn
16nn	@nn
17nn	Ann
18nn	Bnn
19nn	Cnn
20nn	Dnn
21nn	Enn
22nn	Fnn
23nn	Gnn
24nn	Hnn
25nn	Inn
26nn	Jnn
27nn	Knn
28nn	Lnn
29nn	Mnn
30nn	Nnn
31nn	Onn

No. of records	Actual no. in table
32nn	Pnn
33nn	Qnn
34nn	Rnn
35nn	Snn
36nn	Tnn
37nn	Unn
38nn	Vnn
39nn	Wnn
40nn	Xnn
41nn	Ynn
42nn	Znn
43nn	[nn
44nn	\nn
45nn	]nn
46nn	^nn
47nn	`nn
48nn	ann
49nn	bnn
50nn	cnn
51nn	dnn
52nn	enn
53nn	fnn
54nn	gnn

No. of records	Actual no. in table
55nn	hnn
56nn	inn
57nn	jnn
58nn	knn
59nn	lnn
60nn	mnn
61nn	nnn
62nn	onn
63nn	pnn
64nn	qnn
65nn	rnn
66nn	snn
67nn	tnn
68nn	unn
69nn	vnn
70nn	wnn
71nn	xnn
72nn	ynn
73nn	znn
74nn	{nn
75nn	|nn

For example:

_
d
005
_
62981 (Total no. of characters)
A
23
42
>99 (Total record=1499)
06
00
02
000001TimeLOG Sup0001 10001200013000140001
000002TimeLOG Sup0002 10002200023000240002…

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